NOVEMBER/DECEMBER 1981
LIVING THE ADVENTURE OF INFORMATION
VOLUME TWO, ISSUE THREE

SOURCEWORLD

THE NEED FOR INFORMATION

PRICE: $2.00

SOURCE * PLUS
—Five New Data Bases

NEW MENU OPTION

Special Articles by

APPLE's A.C. Markkula, Jr.

OSAG's Richard Barber

THE SOURCE
AMERICA'S INFORMATION UTILITY

"My own IBM computer. Imagine that."

One nice thing about having your own IBM Personal Computer is that it's *yours*. For your business, your project, your department, your class, your family and, indeed, for yourself.

Of course, you might have thought owning a computer was too expensive. But now you can relax.

The IBM Personal Computer starts at less than $1,600[†] for a system that, with the addition of one simple device, hooks up to your home TV and uses your audio cassette recorder.

You might also have thought running a computer was too difficult. But you can relax again.

IBM PERSONAL COMPUTER SPECIFICATIONS
*ADVANCED FEATURES FOR PERSONAL COMPUTERS

User Memory
16K - 256K bytes*
Permanent Memory
(ROM) 40K bytes*
Microprocessor
High speed, 8088*
Auxiliary Memory
2 optional internal diskette drives, 5¼", 160K bytes per diskette
Keyboard
83 keys, 6 ft. cord attaches to system unit*
10 function keys*
10-key numeric pad
Tactile feedback*

Display Screen
High-resolution (720h x 350v)*
80 characters x 25 lines
Upper and lower case
Green phosphor screen*
Diagnostics
Power-on self testing*
Parity checking*
Languages
BASIC, Pascal
Printer
Bidirectional*
80 characters/second
12 character styles, up to 132 characters/line*
9 x 9 character matrix*

Color/Graphics
Text mode:
16 colors*
256 characters and symbols in ROM*
Graphics mode:
4-color resolution: 320h x 200v*
Black & white resolution: 640h x 200v*
Simultaneous graphics & text capability*
Communications
RS-232-C interface
Asynchronous (start/stop) protocol
Up to 9600 bits per second

Getting started is easier than you might think, because IBM has structured the learning process for you. Our literature is in *your* language, not in "computerese." Our software *involves* you, the system *interacts* with you as if it was made to—and it was.

That's why you can be running programs in just one day. Maybe even writing your *own* programs in a matter of weeks.

For ease of use, flexibility and performance, no other personal computer offers as many advanced capabilities. (See the box.)

But what makes the IBM Personal Computer a truly useful tool are software programs selected by IBM's Personal Computer Software Publishing Department. You can have programs in business, professional, word processing, computer language, personal and entertainment categories.

You can see the system and the software in action at any ComputerLand® store or Sears Business Systems Center. Or try it out at one of our IBM Product Centers. The IBM Data Processing Division will serve those customers who want to purchase in quantity.

Your IBM Personal Computer. Once you start working with it, you'll discover more than the answers and solutions you seek: you'll discover that getting there is half the fun. Imagine that. IBM®

The IBM Personal Computer and me.

For the IBM Personal Computer dealer nearest you, call (800) 447-4700. In Illinois, (800) 322-4400. In Alaska or Hawaii, (800) 447-0890.

[†] This price applies to IBM Product Centers. Prices may vary at other stores.

THE SOURCE℠
AMERICA'S INFORMATION UTILITY

THE SOURCE, a service mark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Inc.

SOURCEWORLD MAGAZINE Vol. 2, No. 3
November/December 1981

Published by Source Telecomputing Corporation to support THE SOURCE, America's Information Utility.

Editor – Noel Jan Tyl
Layout Design and Cover Photo – TYL Associates, Incorporated, McLean, Virginia; executed by Kenneth Eastep, Art Director, and John Caruso
Typesetting – Ad-Tech; McLean, Virginia
Printing – William Byrd Press; Richmond, Virginia

Editorial Offices, SOURCEWORLD
Source Telecomputing Corporation
1616 Anderson Road, McLean, Virginia 22102 or through THE SOURCE online mail department: TCA022
Direct Editorial and Advertising telephone: 703-790-5500
Third Class postage, Permit No. 930, paid at Richmond, VA 23228. Price per copy $2.00
Change of address, please send to TCA064

The title name "SOURCEWORLD" and the entire contents of this issue are protected by copyright © 1981 by Source Telecomputing Corporation. All rights reserved.

Executive Staff, STC:
Graeme G. Keeping, Chief Executive Officer
Marshall Graham, President
John C. Aslan, New Business Development
A. Martin Clark, Marketing
William A. Lucas, Product Development
Aksel Olesen, Technology
Nabil K. Saffouri, Finance and Administration
Bettie Alexander Steiger, Information Resources

Editorial — by Graeme G. Keeping — 3

On-Line – for a degree! — 4

New Data Bases — **SOURCE * PLUS** — 6
Media General – Commodity News Services – LEGI-SLATE – Management Contents – Comp-U-Star

Newscreens — 12

Guest Feature — **"Turning Word Processors into a Telecommunication Network"** by Richard D. Barber — 15

On-Line Option — **The New SOURCE MENU** — 18

Staff Feature — **"Meet the Gremlin King"** by Jeff Entwisle — 20

Gamesmanship — **PLAY BLACKDRAGON** — 26

Interview — with Aksel Olesen, SOURCE Vice President, Technology — 28

More New Data Bases — **Electronic Bookstore** — 33
User Publishing — 34

Staff Feature — **"Better Programming on THE SOURCE"** by Wes Padoll — 36

Guest Feature — **"Personal Telecommunications"** by A.C. Markkula, Jr. — 40

Education Feature — **"The Personal Computer Phenomenon in Education"** by Gersten, Schuyler, and Czechowicz — 44

Classified Ads — 48

TELE/CONFERENCING TECHNOLOGIES SEMINAR

DECEMBER 7 & 8 — HILTON HARVEST HOUSE — BOULDER, COLORADO

An innovative seminar on corporate strategies, marketing, and management in high technology information systems.

• • • • •

Did you know that:

- Every day 20 million meetings are held in the U.S.
- 80 percent of all meetings last less than 30 minutes.
- 60 percent of all meetings could be handled by voice communications only.
- 35 percent of all meetings are for the exchange of information only.
- 90 percent of all air travel in the U.S. is business travel.
- Travel costs doubled in the last three years.

• • • • •

Participating experts include:

"MULTI-LOCATION AUDIO/GRAPHIC CONFERENCING"
Dr. Christopher Stockbridge
Bell Laboratories

"AN EXECUTIVE VIEW OF TELECONFERENCING AND ITS POTENTIAL"
William A. Morgan
Vice President
Marketing — COMPORT Corporation

"THE MULTIDIMENSIONAL USES OF AUDIO TELECONFERENCING"
Jack E. Gill
Vice President
Kellogg Communications Corporation

"COMPUTER TELECONFERENCING NETWORKS"
Thomas B. Cross
President
Cross Communications Company

"WHAT NARROWCASTING (slow-scan telephone video) HAS TO OFFER"
Glen Southworth
President
Colorado Video, Inc.

"TELE-SKILLS — HOW BEST TO USE VIDEO TELECONFERENCING"
Hal Josephson
Vice President
Media Sense

"TELECONFERENCING NETWORKS"
Robert S. Magnant
President
RSM Associates

• • • • •

The Tele/Conferencing Seminar costs $395, not including hotel and meals. For registration call or write Cross Communications.

Sponsored by:

colorado video
POST OFFICE BOX 928 BOULDER, COLORADO 80306 USA

&

CROSS COMMUNICATIONS COMPANY
934 PEARL, SUITE B, BOULDER, COLORADO 80302 303/499-8888

© 1981 Cross Communications Company

Editorial

Inside and Out

I've always enjoyed the thematic titles printed on the cover of each edition of *Sourceworld* magazine. Individually, they reflect the points of management emphasis at any given time at THE SOURCE; overall in continuity, they abstract a profile of SOURCE growth.

The premier issue title, for example, March 1980, was particularly telling. Its theme was "The Explosive User". Here was a dramatic beginning for THE SOURCE, then just 8 months old, for the first issue of its new magazine, and its promise of enormous potential to be fulfilled for and through the users. It was an explosion, if you will.

Now, I feel that that explosion has occurred: you know we've increased our staff by 100% (technicians, programmers, system designers, editors, researchers, and marketing support professionals), and the number of SOURCE users is growing faster than ever before. Inside, we now number 100 strong; outside we now support over 12,000 users.

Additionally, on the inside, six Prime 750 computers have been installed to support outside response time at a professional level, with system "uptime" maintained at over 98% during the past four months.

In terms of any big-bang theory, this explosion did begin 20 months ago or even earlier and still is felt. The intent then has been realized now, and that's something of which we can all feel proud. It's easy to see the explosion continuing.

The thematic title on the last issue of *Sourceworld*, June/July 1981, was "Business Utility". That's when we began to dramatize the business uses of THE SOURCE, not just among SOURCE users, but among manufacturers of computer equipment and businesses catching up with Information Age technology. At the same time, on the inside, we conducted a survey of what users thought of THE SOURCE and what other services they wanted. Thousands of you responded, and the findings were extremely helpful to all our planning.

On the cover of this issue of *Sourceworld*, the theme "The Need for Information" captures the thrust of the inside user survey and the new data base explosion out to all of you.

We call the "five-star" line-up of new data bases SOURCE * PLUS: they include a sub-set of LEGISLATE, Comp-U-Star, Management Contents, Ltd., Commodity News Services, Inc. and the long awaited Media General Financial Services data base. SOURCE users can now track House and Senate legislation from committee to passage; comparison shop and transact purchase at bargain prices from an inventory of 30,000 items; stay on top of vital business reading at a tremendous time savings; track the elusive commodities market with updates while the market is trading; and inspect authoritative stock information for up to 3,400 common stocks with 58 items of information about each!

The need for information. That's what we learned from you; that's what we are continuing to fulfill. The original explosion has turned us inside out to do the job, to keep the promises. We have; and it's a SOURCE * PLUS for us all.

Graeme G. Keeping
Chief Executive officer, THE SOURCE

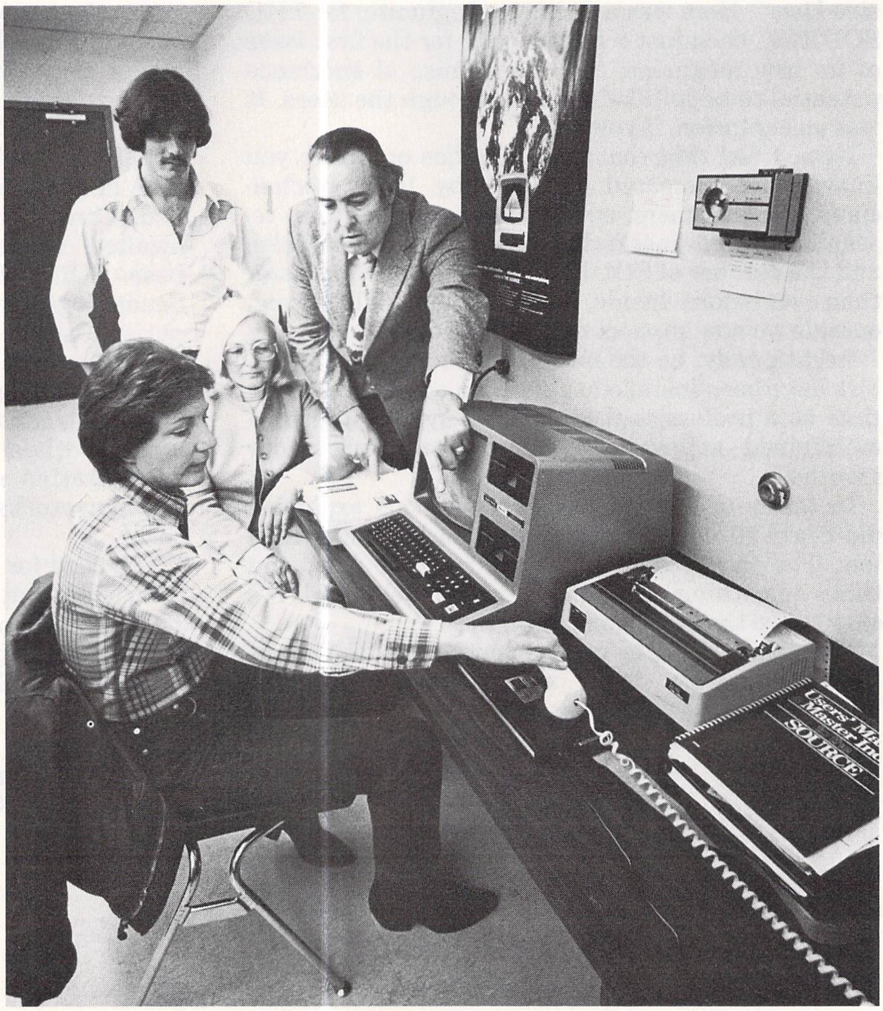
ON LINE For a Degree!

It's happened: the Information Age has more than grown up; it has entered college carrying accredited academic curricula. Now, students can take full college courses for degrees through telecommunications, through the power of THE SOURCE.

The Colorado Technical College in Colorado Springs, CO has been the fastest growing college in that state for the last three years. A 39% growth this last year has been reported by the Colorado Commission on Education. CTC has students from 38 states and 12 foreign countries – and, at present, 4 students on THE SOURCE!

For CTC over the past ten years, teaching technology has been the mission. Associate two-year degrees have been offered in biomedical, electronic, and solar engineering, fully accredited by the North Central Association of Colleges and Schools and by the Accreditation Board for Engineering and Technology. Now, new programs and full Bachelor of Science degrees are

Professor Dave Hughes and some students at Colorado Technical College.



being offered in Applied Science in Computer Science Technology, Industrial Management, and the humanities under a broadening growth program led by CTC president Dan Sullivan.

The tie to THE SOURCE was engineered through Dave Hughes, a SOURCE member since THE SOURCE was 6 months old, who lives in Colorado Springs and is visiting professor of Information Science at CTC. Hughes has his Master's degree in English (which he taught at the U.S. Military Academy at West Point) and is a self-published author and consultant to business on the subject of creative microcomputer management.

Hughes is well known on THE SOURCE (TCE054) for his energetic work to achieve intra-user networking. His contribution to CTC has helped increase its curriculum 23% by presenting humanities and management courses involving and supported by microcomputer technology and networking. His major course at present is entitled "Electronic English", delivered not only to students of CTC but to business leaders as well, interested in improving their understanding of the Information Age. Electronic English creatively defines the distinction between word processing as a clerical tool and electronic English as a creative use of language to achieve communication and publishing success over great distances . . . using THE SOURCE.

SOURCE users can take a degree at Colorado Technical College via THE SOURCE, using textbooks, studying "Electures" presented on-line, learning from "visiting Electurers" from Colorado University and Brown University, and even participating in classroom discussions through the CHAT mode!

On-Line Catalogue

The college catalogue for resident students and "remote" students working through THE SOURCE is on-line: in command mode simply type BASIC (12)TCY699>LEARN and press RETURN. Twenty courses are planned to be on-line within a year.

"Already we have 4 telecommuting students," Hughes says proudly, "one in Alaska, one in New Jersey, in Iowa, and in Portland, Oregon. Each course is three hours per week over eleven weeks, and the tuition is the same on-line as in the classroom: about $210 per eleven week course. All admissions correspondence and even payments are completed through THE SOURCE!"

One of the on-line students is well known not only on THE SOURCE as "Sourdough Red" but in Alaska as H.A. "Red" Boucher, former Lieutenant Governor of that State. Boucher has enrolled in several courses online.

Hughes continued, "Our courses are expanding specifically in the industrial management field, which includes psychology, law, and the mathematic sciences."

We asked in humor about Physical Education courses online, and Hughes countered, "No, but if you want to mention fraternities, I'd say that on THE SOURCE we have the biggest potential for a party!"

The new semester in residence and on-line at Colorado Technical College begins on 4 January 1982. ■

"Red" Boucher, former Lieutenant Governor of Alaska

SOURCE * PLUS

Asterisks on-line label new Value-Added Services!

You asked for it! Here it is: a powerful organization of data bases designed specially for business utility.

The recently conducted survey of SOURCE users produced excellent response, and that response confirmed the profile of the *business* need for information: three times as many businessmen/managers are likely to use electronic communication/information services than engineers, scientists, professionals, or even persons employed in a computer-related job!

Among the most popular electronic services for business professionals are research, electronic mail, business planning and forecasting, news and financial market monitoring, and personal portfolio maintenance, and home education. Over 40% of the thousands of responding users indicate that they subscribe to THE SOURCE for business or work reasons, and 50% say they plan to use THE SOURCE for business-related purposes during the next 12 months. –Now, SOURCE * PLUS serves the business information need even more dramatically.

Businessmen are fighting inflation. More work has to be done more wisely, efficiently, and economically to keep up with fiscal pressures. Better management of time is essential. The need to be aware of the world grows continuously more pressing. Swift, authoritative information is an urgent requirement in everyday business, for businessmen of large and small companies.

SOURCE * PLUS now presents five new data bases designed for the business professional: *Media General Financial Services,* allowing cogent comparisons of extraordinary data for up to 3,400 common stocks; *Commodity News Services, Inc.* that tracks commodities every twenty minutes while the market is trading; *LEGISLATE,* a generous sub-set of the formidable Congressional Bill tracking service, putting business in intimate touch with government; *Management Contents, Ltd.*, providing abstracts of all articles in 27 key publications; and *Comp-U-Star*, a vast bargain shopping and purchasing service with an inventory of 30,000 items!

These SOURCE * PLUS data bases put SOURCE users into five mainstreams of authoritative information: more work done more efficiently, saving time, supporting an easy awareness of the business world never before possible.

THE SOURCE itself is also involved with the inflation fight: AT&T rates have recently been raised over 16%; Telenet and Tymnet rates have increased 22% and 31%, respectively; a 100% expansion of staff at THE SOURCE has been necessary to create and maintain the speed and scope of major new data bases. SOURCE * PLUS has been designed for intensive, concentrated information needs. SOURCE * PLUS access is necessarily at value-added rates: $30 per hour in Prime Time ($40 at 1200 baud); $15 per hour in evening/weekend time ($25 at 1200 baud); and only $10 per hour ($15 at 1200 baud) during economy time (midnight to 7 AM daily). Portions of SOURCE * PLUS also appear at regular time-rates on THE SOURCE, and Menus guide users quickly to whichever data bases they need.

Welcome to SOURCE * PLUS! Read on; grasp the strategic power of this new information. Use it. It's what *you* asked for!

K. Lawrence Gould (left), President of Media General Financial Services, with Dennis H. Cartwright, Vice President and General Manager

Media General Financial Services

Via>MENU or>STOCKVUE

Picture this: up to 3,400 common stocks with 58 items of information about each, from the New York Stock Exchange, the American Stock Exchange, and the Over-The-Counter exchanges, all formated into twelve "screens" creatively organized for rapid record and understanding, all updated weekly, with the added personalized power to incorporate your personal portfolio automatically! –That's the "plus" on THE SOURCE now, provided by Media General Financial Services, a wholly-owned subsidiary of Media General Corporation of Richmond, VA.

Media General Financial Services publishes three prestigious financial newspapers: "Media General Financial Weekly", "Market Data Graphics", and the monthly publication "Industry Scope". The firm also prints customized reports for its customers on a weekly or monthly basis and provides excerpts of its financial information on magnetic tapes for large corporations. In short, Media General Financial Services is a major supplier in the detailed world of authoritative financial information.

On THE SOURCE, the twelve screens of vital stock data from Media General Financial Services are fully explained. On SOURCE * PLUS, the twelve screens come to life, allowing displays of price ratios, volume, dividends, shareholdings, revenues, and earnings, and more!

SOURCE * PLUS users will be guided effortlessly into the grand store of financial information. Your first step will be to input the ticker symbol of the stock(s) at the initial prompt (!). If the exact ticker symbol for the stock is not known, typing SYMB and pressing RETURN helps you get the proper ticker symbol needed. –That's how "friendly" the program is. At no time is the management of complicated data complicated itself!

Enter ticker symbols, one per line, for as many stocks as you require for the data report. At the end of the list, two RETURNs bring the prompt for "screen" selection. –That's all there is to it!

The screens give you special analysis displays for whatever stocks are requested: the 58 data items for the up to 3,400 common stocks within this data base are generally organized around company information (screens 6, 9, 12), price and volume figures (2, 3, 4, 5, 7), predictive information (6, 8), and shareholder information found principally on screen 11. All the screens are fully described on THE SOURCE or can be called up on SOURCE * PLUS by the command HELP. For example, there is screen #10 showing "revenues and ratios", last fiscal year revenue and earnings, profit margin, return on equity, debt to equity ratio, and current ratio. –There are twelve screens altogether: rapid, packed compilations.

Portfolio Power

The Media General Financial Services data base will even follow your own personal portfolio throughout any screen display you choose. –Create your personal portfolio on THE SOURCE like this:

```
ED
INPUT
DGN
PRM
CDA
IBM
WANB

EDIT
FILE MYSTOX
```

Your personal stock portfolio will be in your files until you delete it. To use it within the powerful Media General Financial Services data base, simply enter the filename *within parentheses* at the first symbol prompt: ! (MYSTOX) . Press RETURN twice and make a screen selection. The display for screen 8, "Trend to Market" for the portfolio example is shown in a box on the next page.

More Power

An additional comparative tool available for some of the twelve data screens is "sorting". After the screen is selected, the user is given the sorting option. The sorting is done in relation to the most important data item in that screen. Sorting is offered in ascending or descending order. The program always prompts the user clearly.

Even further, the program will call up all of the stocks from one industry group. In the example on the next page, entering number 71 at the (!) prompt would mean "get all computer stocks".

The special power of this financial data base, beyond the enormous store of data updated weekly, is its capability of *comparing a customized selection of stocks on various attributes.* The display of data throughout the twelve screens stimulates thought, supports evaluation, speeds decision making, and – as always on THE SOURCE – saves time.

Media General Financial Services is what users have been asking for. It's on-line now at a special introductory rate; profitable information and a proud PLUS for THE SOURCE.■

```
DATA PROVIDED BY MEDIA GENERAL FINANCIAL SERVICES, RICHMOND, VA.
DATA FOR WEEK ENDING 4/24/81      8 - "TREND TO MARKET"

                      200 DAY              PRICE TREND         VOLUME TREND
STK      IND        PRICE INDEX           (%) PER DAY          (%) PER DAY
SYM      GRP     VS/MKT    VS/IND      LAST 30    LAST 5     LAST 30    LAST 5

DGN       71        74        75         0.85      0.93        0.79      29.97
PRM       71       195       197         1.00      0.80       -0.55       3.86
DEC       71       129       131         0.63      1.66        1.24     -11.43
CDA       71       114       115         0.55      1.54        0.41       5.63
WANB      71       184       186         0.32      1.27        2.86      -8.00
```

The stocks are returned as a group so that the values can be compared. An investor could detect that of the five mini-computer manufacturers evaluated here, Digital Equipment Corporation (DEC) had the highest price increase trend over the last five days (1.66), while Prime Computer (PRM) had the highest price increase trend for the last 30 days (1.00).

Commodity News Services

Via>MENU or >CNS

There's a saying that both bulls and bears can make money in the commodities market but that pigs get killed. In the commodity futures industry, this saying warns that investors must move quickly to win. News stories relevant to commodity futures and up-to-the-moment price information comprise the base for investors' speed and wise decision. Now, on THE SOURCE and on SOURCE * PLUS, investors have that need for timely information fulfilled: a newswire and a pricewire, through Commodity News Services, Inc., headquartered in Kansas City.

CNS began as a wire service in 1953, reporting market information from the commodity futures exchanges. Now, its operations are extended through bureaus in Chicago, covering the Chicago Board of Trade and the Chicago Mercantile Exchange; in New York City, covering a cluster of commodity futures exchanges headquartered in the World Trade Center; in Minneapolis, reporting the Minneapolis Grain Exchange; and, of course, in Kansas City.

Additionally, CNS has a special bureau in Washington DC that tracks government activity through agriculture and economic news analysis. CNS is also affiliated with UNICOM News, a joint venture with United Press International, and maintains offices in Hong Kong and London.

The emphasis at CNS is not only to provide "real time" prices from all the commodity exchanges, but to gather the news (political, agricultural, weather, economic) that affects supply or demand of the more than 80 commodities traded in North America.

On THE SOURCE, users will get all relevant news stories in all the 24 categories (Grains, Livestock, Lumber, Poultry, Gold, etc.) that can affect commodity prices. There is search power so that you can enter any one of these categories – orange juice, for example – and see news stories that affect particular commodities. Additionally, on THE SOURCE, there is a glossary of commodity terms and abbreviations, to help speed your use of this new PLUS service.

On the SOURCE * PLUS pricewire, commodity prices are updated *every 20 minutes* while the market is actively trading! This is strategic, timely trading information for speed and authority. After the close of the markets early in the afternoon, CNS maintains market commentary and news reports until about 7 PM, Central Time, providing the closing prices, the day's highs, the day's lows, and the changes from the previous day's settlement prices for all commodities.

"The commodity market is

extremely volatile," points out Barbara Ostwald, CNS Managing Editor for Operations, "and the uninformed speculator can easily get lost. We've got the information in terms of news and prices that investors and agriculturists need, and we are proud to share it with subscribers of THE SOURCE."

The commodity industry was founded upon the life-staples of agriculture. Grain futures, for example, have been traded in Chicago for over a century. Now, precious metals are of extraordinary interest to investors along with the traditional cotton, coffee, cocoa, sugar, porkbellies and other livestock commodities. During the 1970's, new commodities were added to the basic list in terms of "financial instruments": Treasury Bills and Bonds, commercial paper, GNMA's, Certificates of Deposit. The commodities industry is expanding rapidly in these restless financial times.

Now, SOURCE bulls and bears have an anchor. They can take a timely look at what is happening with commodities on the exchanges, and in the world that affects them. It's a two-dimensioned PLUS on THE SOURCE! ■

LEGI-SLATE

Via>MENU or >LEGI

Source users want to be in touch with congressional activity. So be it! Technical development only recently completed now supports a generous sub-system of the remarkable LEGI-SLATE computerized Congressional Bill tracking service!

On THE SOURCE, you will now find listings of all members of Congress, including their home slate, party affiliation, address, committees and subcommittees. If you want to write a letter to any Congressman, there's a form letter to guide you on-line, showing important protocol! There are even "ratings" of members of Congress devised by special interest groups such as the Chamber of Commerce of the United States, the AFL-CIO committee on Political Education, and Ralph Nader's Public Citizen's Congress Watch.

On SOURCE * PLUS, all Bills referred out of committee and under further development are tracked. Of the many Bills listed on-line, the status of 40 to 50 of them can be expected to change weekly. These changes are tracked and annotated weekly (on Fridays) by LEGI-SLATE, and its special, copyrighted subject keywords, listed in an on-line glossary, are quickly used to locate any particular Bill by subject. Quite a task fulfilled: what's under way in the Capitol is organized each week to serve the information needs of SOURCE Washington watchers!

When SOURCE * PLUS users target a particular Bill vital to their interests, they can order a reprint of that Bill directly on-line from LEGI-SLATE. The charge is only fifty cents per page, with a $5 minimum. LEGI-SLATE responds within twenty-four hours, sending a copy of the Bill by US Mail.

LEGI-SLATE's basic source for all information is the *Congressional Record*, published every business day following any day the House or Senate is in session. All LEGI-SLATE information is from official documented sources, gathered by the LEGI-SLATE staff in Washington, DC.

"We know the real need citizens have for congressional information," LEGI-SLATE president Curtiss C. Grove said. "That information is strategic to business planning, legal awareness, and community action."

Anyone who needs to know quickly and accurately about Congress and who is not part of the full LEGI-SLATE service utilized by corporations, law firms, professional associations, lobbyists and political action committees now has legislative reportage on THE SOURCE. —There's no other service of its kind; a unique PLUS in the world of THE SOURCE! ■

Management Contents, Ltd.

Via>MENU or >CONTENTS

Tens of thousands of words bombard each of us daily. Speed reading courses work to help us assimilate more and more words, as more and more words are produced. Aware business management demands information, but how much important reading, how many thousands of helpful words are we missing?

Four years ago, while he was in graduate school at Northern Illinois University, John Kuranz felt the verbiage bombardment, the critical demand to be up to date with information. He realized all the reading he was overlooking when he found himself settling for the tables of contents of the publications he needed to read. There was no time for more.

An idea was born: Kuranz

▶

would gather as many publications as he could and list their tables of contents in a computer along with a pithy 7 to 9 line annotation of each article. This would quickly target the higher priority information. It was a reader's dream, and it was an answer to the information explosion.

Management Contents, Inc. was founded in Chicago, and its president, John Kuranz, now presides over the pages of some 500 journals completely indexed and abstracted on a computer. His offices house over 100 linear feet of floor-to-ceiling bookshelves, filled with journals that have been recorded in abstract form into the Management Contents computer. Forty staff members read all the time, summarizing thousands of articles weekly, updating the computerized bibliographies with each new issue of each publication. Some 10,000 business people and students, professionals and the curious from all over the world use Management Contents to read these abstracts, select those vital to their needs, and order reprints from Management Contents.

With a sub-set of its service now on THE SOURCE, Management Contents' customer base is suddenly doubled, and SOURCE users now enjoy access to 27 important business journals, completely annotated to save time in getting to the most needed information.

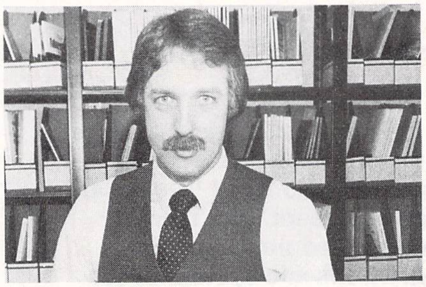
Here's the list selected as the journal base for SOURCE * PLUS (W-weekly; M-monthly; Q-quarterly; ##-issues per year): *Across the Board* (M), *Administrative Management* (M), *American Demographics* (10), *The Banker* (M), *Business & Society Review* (Q), *Business Week* (W), *Cash Flow Magazine* (10), *Dun's Review* (M), *Federal Reserve Bulletin* (M), *Financial Executive* (M), *Forbes* (24), *Fortune* (26), *Futurist* (M), *Harvard Business Review* (24), *INC.* (M), *Institutional Investor* (M), *Journal of Retailing* (Q), *Medical Economics* (26), *Mergers & Acquisitions* (Q), *Monthly Labor Review* (M), *The Office* (M), *Practical Accountant* (M), *Sloan Management Review* (Q), *Taxes, The Tax Magazine*(M), *Venture* (M), *Vital Speeches* (24), *Wharton Magazine* (Q).

On THE SOURCE, these 27 journals are listed along with titles of articles from the latest issue of each of the publications. On SOURCE * PLUS, a keyword search of the abstracts by title, author, or subject takes you to the heart of any article in any of the journals, in any issues throughout 1981. All Management Contents, LTD. information on THE SOURCE and on SOURCE * PLUS *is updated weekly.*

"The most popular publication," Kuranz reports, "is *Venture.* It's directed at the entrepreneurial spirit in everyone—you know, turning that little hamburger stand into a world-wide chain. It talks to the American dream, but its popularity is worldwide."

A Management Contents abstract of the article, "How Media Upstarts Aim for Hispanics" by B. Sloan from the September 1981 issue of *Venture* shows what Kuranz describes:

"The United States Hispanic population has grown by sixty-five percent in the years 1970-1980. To better reach this potential market, a new breed of publisher and broadcaster is trying different advertising approaches. The largest of the media entrepreneurs is Spanish International Network (SIN). The new advertising strategies include television programming on Spanish only or bilingual stations, appealing to affluent Hispanics through specialty magazines and bilingual ad media."


Photo—Chicago Tribune

John Kuranz, President: Management Contents, Inc.

You can now use Management Contents, LTD. to do a great deal of the reading important to your business intelligence. Scanning the tables of contents and article titles of the 27 publications on THE SOURCE, keyword searching abstracts of any articles throughout 1981 on SOURCE * PLUS are tremendous research services for all with an increasingly pressing need for information. When a vital article is spotted, users on SOURCE * PLUS can easily order on-line a reprint of the article for $6.50. Management Contents mails out the article reprint the same day it is ordered. "And we even offer facsimile telecopy transmission to anyone who will call our toll-free number, 800-323-5354," Kuranz adds. "We like to feel that we've harnessed the information explosion. With THE SOURCE, we are helping to serve America's extraordinary need for information as quickly and easily as possible."■

Comp-U-STAR
Via>MENU or >CSTAR

Everyone loves a bargain! Since the earliest days of THE SOURCE, DATA BUCKS has been the popular command for shopping convenience and bargain purchase within a broad range of items. Now, after two years of inflation, the need for bargain purchase power and expanded inventory is even greater. THE SOURCE and Comp-U-Star are serving that need.

This expanded shoppers data base begins with a "Bargain Basement" on THE SOURCE. The command CSTAR or the appropriate Menu guide allows you to browse through special bargains that are changed monthly. These bargains can be purchased through an 800 number call by all users with a Comp-U-Card account number assigned through the former DATA BUCKS, until their present card expires.

The expanded data base continues on SOURCE * PLUS. It's colossal, it's Comp-U-*STAR*, with 30,000 items inventoried for on-line shopping and purchase! For example, savings on cameras can be 42%; on an ultra deluxe console color television set, 34%.

The SOURCE * PLUS inventory has tremendous keyword search power. Users can comparison shop by kind of product, manufacturer, model number, product characteristics, and as well by preferred price range!

"There's no other service of its kind anywhere," Comp-U-Card's president Richard Sandberg says, "a national data base of consumer prices, products, and services. We're trying to give the consumer product-by-product, feature-by-feature information to help intelligent buyers find what's just right for their needs. We wrap up product research, comparison shopping, and transaction completion in one look-through on the monitor."

The data base is so large and involved that it is maintained at a facility separate from Comp-U-Card of America's headquarters in Stamford, CT. Comp-U-Card's host computer for this data base is in Ohio, and it is staffed by 14 people who constantly update price data that change daily on thousands of items. *Special commands to traffic within the SOURCE * PLUS data base are on-line.*

"SOURCE users have been great customers," Sandberg continued, "but within the last six months especially, hundreds upon hundreds of hours have been logged with us on THE SOURCE shopping for bargains. I feel that this is a direct response to the impact of inflation: people are finding it more and more difficult to know what they should pay for any product. Our bargains have earned reliability."

Sandberg points out that, along with inflation, there are often time pressures for shoppers: "The convenience of electronic home shopping and purchase service improves time management considerably for increasing numbers of working couples, for the 50% of adult American women now working, and for the 15% and more single parents with enormous pressures on their time."

SOURCE * PLUS users, given a high-security order number have the power to purchase any item on-line. This purchase power, normally requiring a $25 annual membership fee, is made available to SOURCE * PLUS users free of charge on a special introductory basis. Charges are made on Master Charge or Visa credit card, and the item is on its way to you by United Parcel Service or other transport.

Richard Sandberg, President: Comp-U-Card of America, Inc.

Sandberg estimates the overall value of the computerized inventory as well above $100,000,000. "We're now looking into extending the range of what we have to include everyday necessities like food and toiletries, but we need to find distributors who have caught up with the opportunities created by our innovation."

SOURCE users have the innovation at their fingertips! Bargain shopping: quick finds in the "Bargain Basement" of THE SOURCE; and thorough, thrifty purchase power on SOURCE * PLUS! ■

NEWSCREENS

Philips offers THE SOURCE

Philips Information Systems, Inc., a subsidiary of Philips Data Systems, offers its new MICOM 2001 word processing system with a tie-in to THE SOURCE. A SOURCE subscription is provided free with any purchase of the MICOM 2001 with communications ability. "We feel that THE SOURCE expands a special vital dimension of the MICOM 2001," Philips Information Systems president John H. Clark said. "It ties in with our Executive Work Station package called 'Time Track' that is designed to help executives manage their time.

"Since the MICOM 2001 word processor is already such a multifunctional tool, it doesn't make sense to limit it in any way. With communications power, the functions become practically *un*limited in executive operation. THE SOURCE makes this expansion possible, and we expect tremendous results: at present, perhaps 30% of our word processors are sold with communications ability; we see that percentage going to 75 or 80% over the next two years."

Bank Test with SOURCE Interest

The First Interstate Bank of California, the fifth largest bank in that state and owned by the ninth largest financial institution holding corporation in the United States, is now testing customer banking through home computers. In the San Fernando Valley, 250 of First Interstate's customers are using TRS-80 terminals at no charge to the customer to check their bank balance, savings balance, gather information on interest rates, check CD balances, manage funds transfer from one account to another, and pay bills. As an incentive within the test program, First Interstate also includes THE SOURCE.

"We feel that the excitement and usefulness of THE SOURCE will help break down any fears of computers our customers may have," Mickey Fennell, First Interstate Assistant Vice President and Project Manager said, "and show the customers how easy and productive a home terminal can be in modern banking."

SOURCE is Loft Luxury

Prior to the colonial settlement of Manhattan, New York City, the corner of Beach and West Broadway was at the edge of a swampy stream bed. Eventually, the area was drained and filled in to allow construction of an eleven story building, the New York Wool Exchange, in 1894–1896. The building was taken over in 1907 by the American Thread Company. Now in 1981, the American Thread Company building has been renovated to house 53 luxury lofts and condominium apartments, with modern appointments that include THE SOURCE in each one of them.

Along with number 1 grade hardwood oak floors, kitchens with every convenience, space galore and a rooftop garden with hot tub and sauna, the American Thread Company building at 260 West Broadway offers THE SOURCE as an "in-loft computer for all the information busy people require."

TIME on THE SOURCE

TIME magazine, in its 26 October 1981 issue, devoted a full page to the telecommunications industry. Its "Economy & Business" article was entitled "May the Source Be with You – a flood of information arrives at home via computer."

SOURCE ComputerPost

Under the SOURCE POST department online, owners of personal computers can talk tech, solve problems, and exchange information with owners of similar systems. Here are just a few of the categories (check POST READ HELP for the full list): Wang, CPT, Zenith, Novation, XEROX, Hewlett-Packard, NEC, Philips, DEC, Heath, Lanier, CADO, and CP/M. Check it out: POST READ (category name). To post a notice, see instructions under DATA CLASSI.

Additionally, there's the Commodore department under the command CBM, as reported in the last issue of *Sourceworld.*■

© NIRS 1981

NATIONAL
INSTITUTE OF
RELOCATION
SERVICES
INC.

**NATIONAL
INSTITUTE OF
RELOCATION
SERVICES, INC.**

*Referrals for Expert Assistance
During Your Relocation Plans*

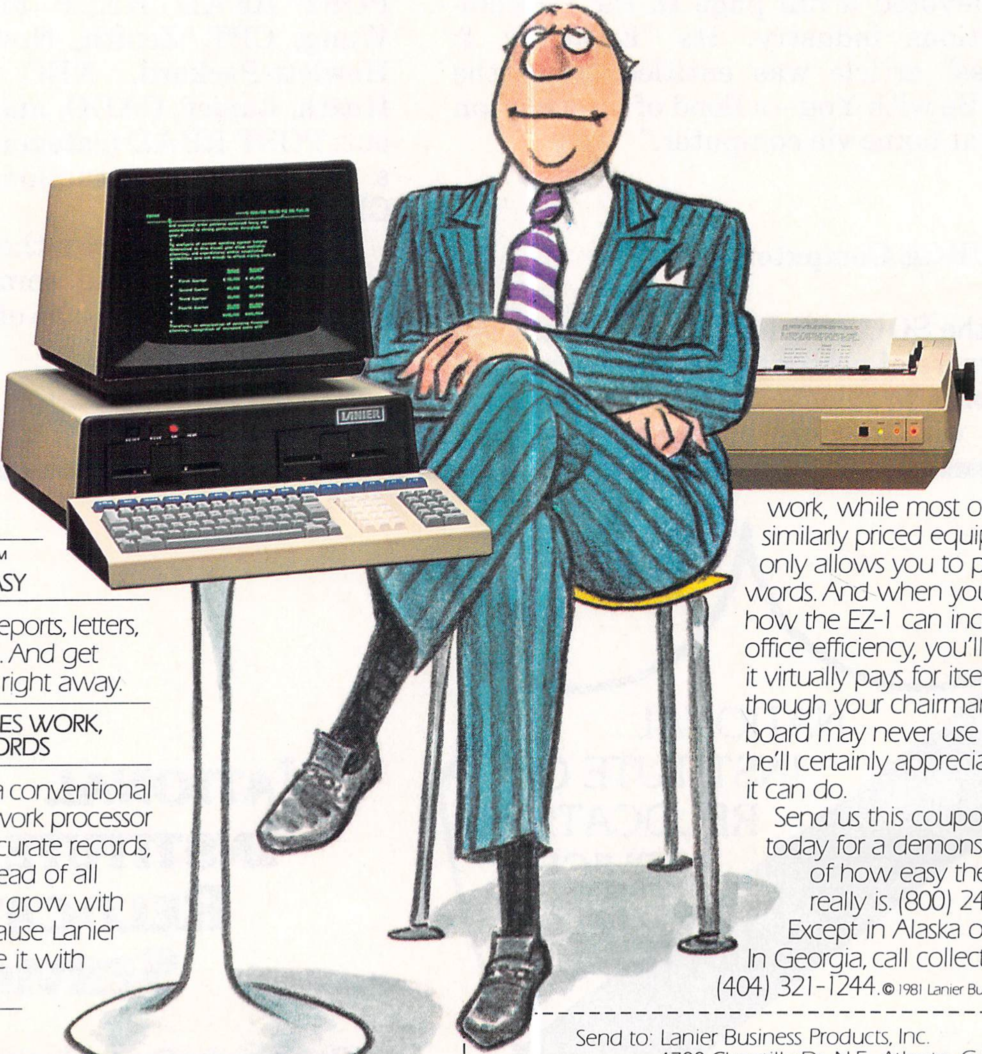
CONTACT TCU955

A PROFESSIONAL REAL ESTATE SERVICE

SUITE C • 1070 IRIS DRIVE • CONYERS, GA 30207 • (404) 483-0288

brc&a direct marketing

Introducing a work processor so easy even the chairman of the board can operate it.



LANIER'S NEW EZ-1™ MAKES TYPING SO EASY

Now it's easy to type reports, letters, memos, lists, and more. And get them done accurately right away.

THE EZ-1 PROCESSES WORK, NOT JUST WORDS

The EZ-1 is more than a conventional word processor. It's a work processor that also files, keeps accurate records, and helps you stay ahead of all your paperwork. It can grow with your business too, because Lanier will continually update it with new capabilities.

HARD WORK WAS NEVER THIS EASY

Your secretary types on a TV-like screen instead of on paper, so changes are made before printing. That saves time and helps avoid typos. All your work is produced in letter-quality printing at less than 30 seconds per page. 50-200 pages can be stored on a single memory disc. In addition, the EZ-1 does more than one job at a time, which can free your secretary to work on other administrative tasks.

EASY TO AFFORD

The new EZ-1 gives you the ability to process all kinds of work, while most other similarly priced equipment only allows you to process words. And when you consider how the EZ-1 can increase office efficiency, you'll see how it virtually pays for itself. Even though your chairman of the board may never use the EZ-1, he'll certainly appreciate all it can do.

Send us this coupon, or call today for a demonstration of how easy the EZ-1 really is. (800) 241-1706. Except in Alaska or Hawaii. In Georgia, call collect: (404) 321-1244. © 1981 Lanier Business Products, Inc.

LANIER'S EZ-1

Send to: Lanier Business Products, Inc.
1700 Chantilly Dr. N.E., Atlanta, GA 30324

Show me how easy the EZ-1 is.

Name

Title

Phone

Best Time to Call

Firm

Address

City

County

State

Zip

Oct./Nov. '81 Source World 4 75 B J1

LANIER® We make your good people even better.

Makers of the TypeMaster,™ No Problem® Typewriter, No Problem Shared System,™ and EZ-1™ Work Processor.

Turning Word Processors into a Telecommunication Network

Richard Barber

by Richard D. Barber,
Founder and Director, Office Systems Advisory Group, a division of Government Counselling Limited, Alexandria, Virginia

Twenty years ago, telecommunication networks had massive data bases and, indeed, were widely used. Limited access requirements were imposed, however, and end users like me had to negotiate through intermediaries (systems analysts, reservation clerks, librarians, secretaries) in order to use this information. While this method proved to be effective, it was not very efficient.

As an early user, I envisioned a time when I could access this non-proprietary information directly. I dreamed of instantaneous access and of gathering the information needed to make decisions. Earlier this year, I had the good fortune of discovering THE SOURCE. With thousands of programs, services and features, a whole new world of information was opened to me. What was originally perceived as a dream turned into a *working reality*. My only problem today is learning how to be maximally creative in putting to work this production-enhancing capability called "telecommunications." My problem is *not* unique: individuals, agencies, and large businesses are equally bewildered by the potential of this telecommunications age.

Today's office is slowly grinding at a snail's pace, with executives eagerly seeking the answer to a method or process that can lift the information access burden and speed up throughput in the office. The primary office problem is not people, procedures, job functions or, in many cases, equipment. The people and tools for conducting work are there. However, the *information* required to execute, plan, make decisions, consider alternatives, and determine work needs is not easily locatable. In many cases, the information has been received, is somewhere in the office, but is either inaccessible or buried in a massive report.

In addition, today's office workers need information more rapidly than they did just a few years ago. The demand on an executive's time is greater than ever before. The information required must be accurate as well as timely, and should, if possible, be delivered in a format which lends itself to easy integration into the end product (a contract, will, ruling, position paper, marketing strategy).

In reviewing over seven hundred assorted jobs, it is my observation that office workers have an information demand time of two to three minutes. That is, information to respond to a phone call, verbal inquiry or written inquiry is most useful if it can be retrieved in a logical sequence in this time frame to address that individual inquiry. If the information is not available, the phone call must be returned or placed on hold. The verbal inquiry must be delayed and usually requires a written response. The letter inquiry goes into the stack "to be answered later," which usually results in a lengthy delay or no answer at all.

The Telecommunications Boost

Improving the information flow and reducing labor intensive paper handling tasks are key to improving the productivity of office professionals. In many instances, telecommunication services address these vital factors through their ability to provide access to multiple data bases and information resources. Some provide the office professional with a method of communications and electronically storing messages, letters and other paper-oriented information, with accurate recall capabilities.

Word processors have successfully provided a means of preparing, processing, storing and outputting documents. When tied to a telecommunications network, this information is no longer isolated at one site, but can be used internally and externally by other authorized users. An immediate reduction in paperwork handling tasks occurs, and an increase in information becomes available.

Computer assisted systems for order entry, inventory control, resource management and financial programs can be interconnected between local and remote sites. Expensive software programs can be shared and standardized formats established. The end result is a streamlined operation with vastly improved

▶

management control. The application of information technology, especially through a telecommunications service, can be achieved at a relatively low cost with minimum hardware and technical personnel investment. *These telecommunication service companies provide the most modern, comprehensive, effective communications and information services available.* There is no need for programmers or technically oriented users on your staff.

Many predict that the successful office of the 1980's and 90's must have advanced communications systems that can greatly decrease the need for face-to-face and telephone communications and expedite the movement of critical information internally and externally.

As hard as it may be to accept that fact, it *is* a reality. Simply speaking, it *must* happen to increase the productivity of management personnel. People who handle information account for over one-third of the U.S. work force, and their numbers are increasing at such a rate they will equal two-thirds of the work force by the late 1980's. Information processing activities in the office account for about 5.5 hours of the 8 hour work day. This being so, the processing of information must be addressed if we are to become more productive and provide a responsive level of services within an acceptable cost of doing business.

Most companies do not have the technological and personnel resources required to move rapidly in the electronic information processing field. Hardware, software and technically trained system technicians and programmers are at a premium in today's market. The solution to these barriers may be the use of telecommunication companies that provide many of the services, data bases, and system features that can, in fact, increase information processing personnel's capabilities. Numerous advanced communication features are available through telecommunication companies that can increase management productivity:

- **Personal Electronic Mail** systems that substitute for telephone conversations, one-on-one meetings, and paper filing systems. Imagine never having to play "telephone tag" again, but rather, send a message at *your* convenience, knowing that the recipient will answer it when he/she returns; or of never scheduling meetings on a one-by-one basis just because not all parties could assemble at the same time, but instead, utilizing distribution lists and calendar features to allow efficient planning for future meetings; or of never being unable to find that paper you need just because your secretary is out to lunch, but search for the information you need on a simple keyword-searched electronic filing system.
- **Document Distribution Systems** that allow reference papers, issue papers and other supporting documents to be passed electronically from one site to several others at nanosecond speeds with the ability to print a letter-quality copy at either end or store the document in easily accessible electronic files. In many cases, output can be also transferred to a photocomposer or computer output microform, thus greatly reducing printing and publishing costs.
- **Electronic Data Base Access** to on-line data bases and information files from hundreds of sources. A representative sample of those available include foreign exchange rates, New York Times News Summary, stock market reports and the UPI wire on THE SOURCE.
- **Special Programs** that greatly enhance the executive's decision making process include cash flow computations, loan amortization schedules, lease vs. purchase decisions, modeling of potential management objectives, short and long range planning programs, decision analysis techniques and nation-wide personnel recruiting search.
- **Executive Aid** programs such as personal calendaring, private data base files, telephone lists, birthday reminders, and suspense file systems.
- **Personal services** are also available; airline and hotel reservations, restaurant guides, buying and bartering networks are just a few of those available to the busy executive.
- **Terminal Integrators** that allow diversed data terminals, both fixed and portable, and word processors to "talk" with each other, no matter the speed of transmission or "language" used.

The obvious key to this whole technological jump in office capabilities rests with electronic transmission facilities that can handle the information we need and provide the compatibility between various devices and sites. In particular, telecommunications companies are looking for: 1) Controllers that can operate like today's advanced PABX's which integrate data, image, voice and video capabilities into one system for internal and external system access; and 2) Local networks that allow any device to talk to another.

Business people can now make decisions that have been tested against variable consequences and refined to a high level of accuracy. Access to the information in many cases is handled by a variety of fixed and portable data terminals, word processors and home computers ranging in size from that of a portable television to a hand-held dictation unit. Revolutionary changes are occurring in the way we do business, the technology used in the office, and the application of technology to business processes. In many cases, these changes have been so dynamic and extensive that the way we do business will be completely different in the 1980's versus the previous decade.

Alvin Toffler's "Information Society" is manifesting right before our very eyes! Information is rapidly displacing manufacturing, petrochemical and agricultural businesses as the basic framework of our society. The business of "information" is here to stay and is making maximum contributions to our economy. The production, processing, distribution and use of information are the most rapidly growing businesses in our economy and most of the free world. The development of new services and markets in the information field is a rapid growth industry.

"Go For It!"

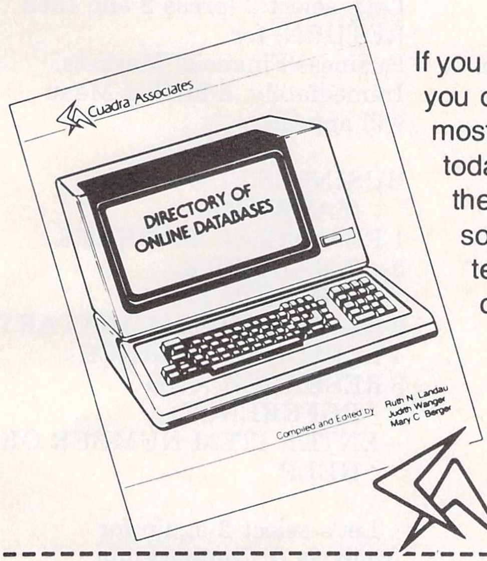
The technologies exist today in computers, data base management and access, terminals, printers, communication networks, and telecommunication service companies to meet the current information needs of business. We need only seek out what we need and obtain it, to "go for it"!

However, information is power in many of today's business environments. As a result, many power hungry individuals place "roadblocks" in the way of successful electronic information access programs. As the cost of doing business spirals, senior executives and stockholders must bring pressure to bear on these minorities to free up information and provide it more rapidly to authorized users.

In many industries, information movement and access via electronic means is growing. The banking industry is heavily involved in electronic funds transfer. Teleconferencing of annual meetings and strategic planning sessions has been successfully used by major corporations. Electronic mail is being used *within* office buildings as well as among remote office sites. Agendas, schedules and phone calls are being replaced with electronic systems in many business sectors. The phone systems are also undergoing great improvements in call processing methods, i.e., automatic dialing, store and forward voice messages, etc. Even at home, many business people have an on-line electronic office with nearly all the information and processing services available in the formal office.

We must be aware that our world is rapidly changing. Although the effect of these telecommunication marvels is not yet fully understood or maximally applied, two points are challengingly apparent: the telecommunications effect is changing the way we do business, and we who do that business can grasp that change for profit right now.■

Do you have all the information that you need?


Cuadra Associates
DIRECTORY OF ONLINE DATABASES
Compiled and Edited by Ruth N. Landau Judith Wanger Mary C. Berger

If you do, you're fortunate and rare. If you don't — or if you suspect that you don't — you need the DIRECTORY OF ONLINE DATABASES, the most up-to-date source of information on online databases available today. It provides detailed descriptions of over 750 databases serving the needs of users in business, economics, science, technology, the social sciences, education, and other areas. With its unique quarterly updating system, the DIRECTORY makes it easy to monitor online information resources in your field:

- bibliographic
- referral
- numeric/statistical
- chemical or physical properties
- combination numeric/textual
- full text

DIRECTORY OF ONLINE DATABASES

For further information, mail coupon to:

Directory Information
Cuadra Associates, Inc.
1523 Sixth St., Suite 12
Santa Monica, CA 90401

Name ______________________________

Address ______________________________

City ______________ State __________ Zip __________

G

—You asked for it!

The New SOURCE Menu Option

Many of us frequent the same restaurant often enough that we no longer need a menu. Many of us have been bewildered by extraordinarily detailed bills of fare in other places or have been confined to certain specialties of the house.

At THE SOURCE, the number of services keeps growing –beyond 1,400 at present– and such a store can confuse all but the seasoned user, one routined in calling up specifically just what he or she wants.

It was no surprise then, that the recent SOURCE survey of users revealed that 86% wanted a Menu option to help make selections from THE SOURCE more rapidly and easily, a Menu option in addition to the direct individual "plain English" commands SOURCE users have relied on since the beginning.–You asked for it! You've got it!

On THE SOURCE now, immediately after the importantly informative Sign-On messages that are changed almost daily, a simple list greets all users:

```
1  OVERVIEW OF THE
     SOURCE
2  INSTRUCTIONS
3  THE SOURCE MENU
4  COMMAND LEVEL
–ENTER ITEM NUMBER–
```

By choosing any number 1 thru 4, the user can enter THE SOURCE immediately for general orientation or specific task. Item 4 (press 4 and then RETURN) immediately puts the user into the usual command mode for entry of specific database commands listed in the SOURCE Digest in the *User's Manual.* Item 3 begins a formal series of Menus to guide new users especially quickly into THE SOURCE store of databases:

Robin Cobbey

```
          SOURCE MENU
1 NEWS AND REFERENCE
    RESOURCES
2 BUSINESS/FINANCIAL
    MARKETS
3 CATALOGUE SHOPPING
4 HOME AND LEISURE
5 EDUCATION AND
    CAREERS
6 MAIL AND
    COMMUNICATIONS
7 CREATING AND
    COMPUTING
8 SOURCE * PLUS
–ENTER ITEM NUMBER OR
    HELP
```

Let's select 2 (press 2 and then RETURN) for Business/Financial Markets. Immediately, a further Menu will appear:

```
BUSINESS/FINANCIAL
    MARKETS
1 FINANCIAL MARKETS
2   ANALYSIS &
    COMPUTATION
3 NEWS AND COMMENTARY
4 PERSONAL FINANCE
5 RESEARCH AND
    REFERENCE
–ENTER ITEM NUMBER OR
    HELP
```

Let's select 2 again for Analysis & Computation:

```
ANAYLIS & COMPUTATION
1 RAYLUX
2 MODEL1 FINANCIAL
    MODELING
```

```
3 COMPUTATIONAL
    PROGRAMS
4 MEDIA GENERAL STOCK
    ANALYSIS
–ENTER ITEM NUMBER OR
    HELP
```

With the selection of 1, the user will see the index display of Steve Lewin's popular RAYLUX reports.

Through this line of Menus in our example, several numbers were keyed individually, prompted by the Menus. Of course, in "Direct Command Mode", the RAYLUX reports could have been brought to the screen by the commands DATA COMMENT, DATA BUSINESS, DATA MARKET, or DATA GLOSS. The real help of the *Menu option* here is for the less experienced users of THE SOURCE or for users who want to study financial analyis reports but have forgotten the exact commands.

The Menu conceptualization was developed by Robin Cobbey, Design Editor of the THE SOURCE. Cobbey has her Ph.D. in communications from Syracuse University. Before coming to THE SOURCE, Cobbey directed research and evaluation for Viewdata Corporation, a subsidiary of Knight Ridder.

"The Menu system on THE SOURCE," Cobbey says, "will help the browsers in a new electronic world and certainly as well, anyone who might still be afraid of computers. We feel that the Menu will become a popular mode of navigation throughout the vast resources ever accumulating at THE SOURCE. We've responded to the users' needs as quickly as possible!" ■

Just off press! The Famous Fielding Guides –all new for 1982!

Completely updated!

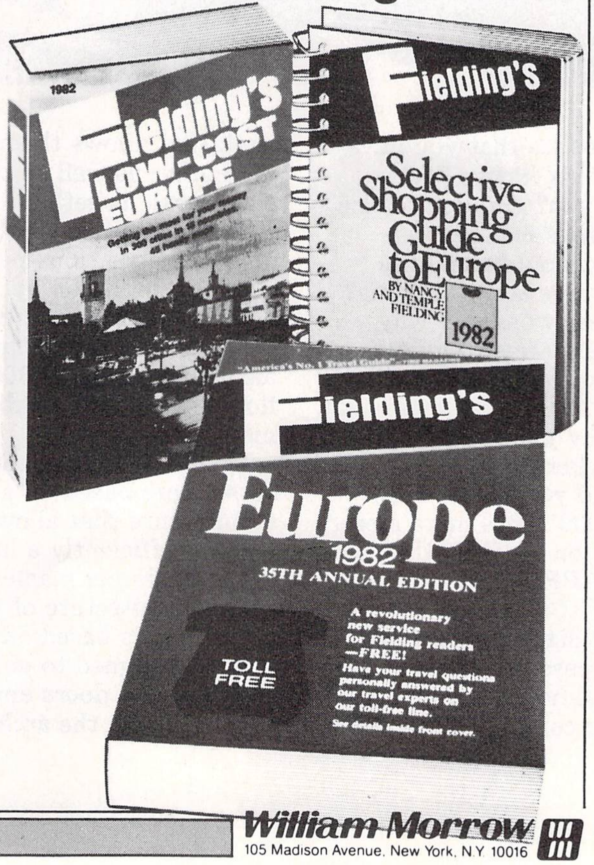
Austria • Belgium • Denmark England • Finland • France Germany • Greece • Ireland Italy • Liechtenstein Luxembourg • Mallorca Monaco • Netherlands • Norway Portugal • Scotland • Spain Sweden • Switzerland

FIELDING'S EUROPE 1982
"America's No. 1 Travel Guide"
—*Time* $12.95

FIELDING'S SELECTIVE SHOPPING GUIDE TO EUROPE 1982
More than 1,400 shops and markets
More than 200 different categories
$4.95

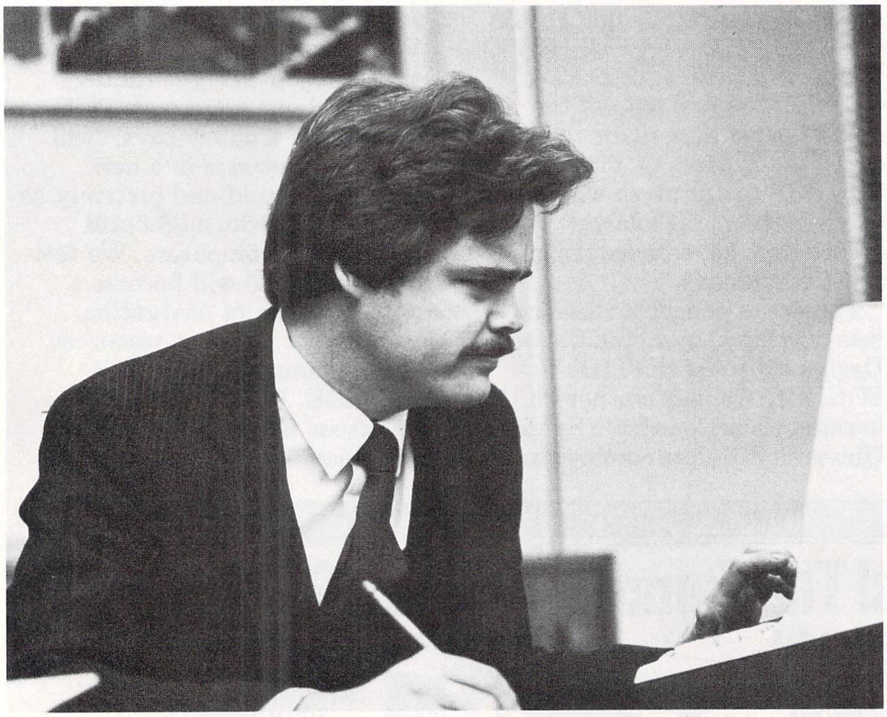
FIELDING'S LOW-COST EUROPE 1982
Getting the most for your money in 300 cities in 18 countries $6.95

William Morrow
105 Madison Avenue, New York, N.Y. 10016


1982
Fielding's LOW-COST EUROPE
Fielding's
Selective Shopping Guide to Europe
BY NANCY AND TEMPLE FIELDING
1982
"America's No. 1 Travel Guide"
Fielding's
Europe
1982
35TH ANNUAL EDITION
A revolutionary new service for Fielding readers —FREE!
TOLL FREE

"Meet the Gremlin King"

by Jeffrey Entwisle,
Director Systems Development



Jeff Entwisle

Did you realize that you have the power of six Prime 750's working for you? Did you realize that the listings for the operating system would equal the height of a three story building? Have you ever wondered why your terminal seems to go to sleep right in the middle of a UPI display? Have you ever wondered why you seem to get answers quicker during some sessions? Did you realize that you have 1,000 times more memory capacity on THE SOURCE than on an APPLE?

THE SOURCE computing facility houses six individual and identical processors. These powerful workhorses are linked together in a communication network that allows them *to talk to each other* as well as to the outside world. Together, these processors can perform over 9 million instructions per second, support 3.6 billion bytes of online disk storage, 18 million bytes of memory! That is equivalent to roughly 20,000 APPLE floppies, and 300 64kb APPLE memories.

Unlike the micro, these processors are based on a complex architecture that allows them to manage efficiently a large number of users per machine. Much as the architecture of your supermarket is based on brick and mortar designed to get a lot of people in the doors and serve them quickly, the architecture of THE SOURCE processor is based on chips and wires designed to support a lot of users quickly and cheaply.

Much like the micro, the architecture gives the appearance of a dedicated processor to each and every user. But, behind the scene, a gremlin runs about putting the bits and pieces of a program into the machine when and where they can be most efficiently executed. If any of you have a family of 100 kids all trying to watch different shows on the TV, you can probably appreciate the magnitude of the problem.

The mechanism by which the processor manages a lot of users all vying for the same set of computer resources, is called *paging*. It's really a big Game played according to rules.

1) Each player gets several million *things*.

2) Things are kept in *crates* that hold 64 things each. Things in the same crate are called *crate mates*.

3) Crates are stored either in the *workshop* or a *warehouse*. The workshop is almost always too small to hold all the crates.

4) There is only one workshop, but there may be several warehouses. Everybody shares them.

5) Each thing has a *thing number*. Each player's stock of things has the same numbers as everybody else's.

6) When you work on a thing, you *zark* it. Only one person may zark at a time, and everybody takes turns zarking.

7) You can only zark your own thing.

8) Things can only be zarked in the workshop.

9) Only the *Gremlin King* knows whether a thing is in the workshop or in a warehouse.

10) The longer a thing goes without being zarked, the *grubbier* it is said to become.

11) The way you get things is to ask the Gremlin King. He only gives out things in multiples of three. This is to keep the royal overhead down.

12) The workshop only holds 1,000 crates. The Gremlin King only finished sixth grade and doesn't know how to count any higher.

13) You are only allowed 100 crates. The Gremlin King is also stingy.

14) The warehouses only have room for 100 players' crates. Do you realize what warehouse real estate costs these days?

15) The way you zark a thing is to give its thing number. If you give the number of a thing that happens to be in the workshop, it gets zarked right away. If it is in a warehouse, the Gremlin King packs the crate containing your thing back into the workshop. If there is no room in the workshop, he first finds the grubbiest crate in the workshop, whether it be yours or somebody else's, and packs it off with all its crate-mates to a warehouse. In its place, he puts the crate containing your thing. Your thing then gets zarked, and you never knew it wasn't in the workshop in the first place!

16) If there is no room in the warehouse for your crate, then you have to wait until somebody stops playing or until somebody voluntarily makes room in the workshop.

Notes

1) Traditionally, the Gremlin King sits at a large, segmented table and is attended to by brightly colored pages (the so called "yellow pages") whose job it is to help the king remember where all the things are and to whom they belong.

2) The Gremlin King has a few things of his own, some of which move back and forth between the workshop and a warehouse just like anybody else's, but some of which are just too heavy to move out of the workshop.

3) With the given set of rules, oft-zarked things tend to get kept mostly in the workshop while little-zarked things stay mostly in a warehouse. This provides efficient stock control.

4) Sometimes, even the warehouse gets full. This is quite annoying to the king's subjects because they have to wait to get zarked. The king cannot afford any more warehouse real estate, so a forthcoming rule change would allow crates to be stored in the owner's home instead of the warehouse.

Long Live the King

Parallel to above rules:

If you have it and you know you have it, it's *real*.

If you have it and you don't know you have it, it's *transparent*.

If you don't have it and you think you have it, it's *virtual*.

If you don't have it and you know you don't have it, it's *nonexistent*.

As you can see, the gremlin has quite a bit to do, continually making it appear as if you have it when you don't! Sometimes he is not very successful and does not get around to you quickly enough. That is when you notice that your display stops momentarily: there is so much to do that crates are flying in and out of the workshop! As you curse the slow rush hour traffic pace, remember that the system too, much like a highway, slows down when there's a lot of traffic.

All of this underlying housekeeping is designed to provide the most *cost effective* service

►

possible. It is much cheaper to car-pool to work than to drive yourself. Likewise, it is much cheaper to share computing resources among many users than to dedicate them. So, we are not only trying to provide the most responsive system through clever resource management, but with an eye towards cost, the least expensive and most reliable as well.

Now, the Gremlin King, realizing that it is not enough to provide an efficient stock control system for his subjects, is constantly thinking up new services he can offer. After all, he came up with a pretty good way to handle "things", why not open up a store and sell services to other kingdoms! Not only could he keep his subjects fully employed, but pad the royal treasury to boot. Because he controls the resources, if managed cleverly, the royal overhead would be lower and his whole system would become even more productive!

He reasoned that the way he managed requests for information now was very clumsy indeed. If someone wanted to know the latest news story, they had to issue a *command*, in writing, to his highness, requesting UPI, and all its things become zarked. He was very happy to do this, of course, but noticed that commands for service usually are followed by other commands and that a lot of times the current command was based on the last command. But, by the time the next command was issued, he had probably already moved all the crates required to fulfill the command back out to a warehouse. That was an awful lot of overhead, especially if the next command could have used some of the things already in the workshop. –AHHA! I'll allow users of my service to give me a list of commands to do *all at once*. That way I can keep all the things around that are needed to fulfill the total requirement in the workshop. The savings in overhead could be enormous!

Alas, that was not good enough. The command list was useful for many things, but, as his users pointed out, it did not allow decisions to be made based on the outcome of the last command or other external influences. His users argued that cataloging the commands was extremely restrictive when what was really required was a mechanism *to decide which command to do next*. Marvelous, thought the King. I will invent a command procedure language and allows my users to catalog just that. In it they can have all sorts of options to decide how their commands are to be executed. That should save even more on my royal overhead.

Well, the King went off to think and at last glance was still pondering the meaning of his command procedure language (CPL). He did take the time to say that he had figured it out but wasn't sure when he could offer it to the rest of the world. –I, for one, cannot wait for its announcement.

> *"We've had some fun with the Gremlin King. He helps explain some of the magic within THE SOURCE."*

Future Tech

We've had some fun with the Gremlin King. He helps to explain some of the magic within THE SOURCE that makes possible the presentation of timely information. As the King comes up with better and faster services, all SOURCE subscribers benefit. We are constantly striving for the most effective ways to speed access and support new data bases, and CPL is a key element in that effort.

Let me share with you, now, some of the future technology plans of the SOURCE. We hope to offer a system capable of supporting billions of words of information. We hope to provide the capability to reroute the user to the machine best capable of fulfilling an information request *on the fly*. We hope to have the capability to connect many different *types* of processors *transparent* to the user. We are committed to do this and to do it at *less cost* to the user.

Sounds aggressive? You're right. Sounds exciting? Absolutely! And we will do it. Step by step.

But how are we going to do this? Our attention is focused on two areas. First, on the *front end* and secondly, on the *back end*. The front end allows us to open the gateway to THE SOURCE. It is the TELENET and TYMNET communication links that you dial to get into THE SOURCE. Once you are signed on, the back end allows us to offer data base services to you. It is the access to the disk subsystems and related files.

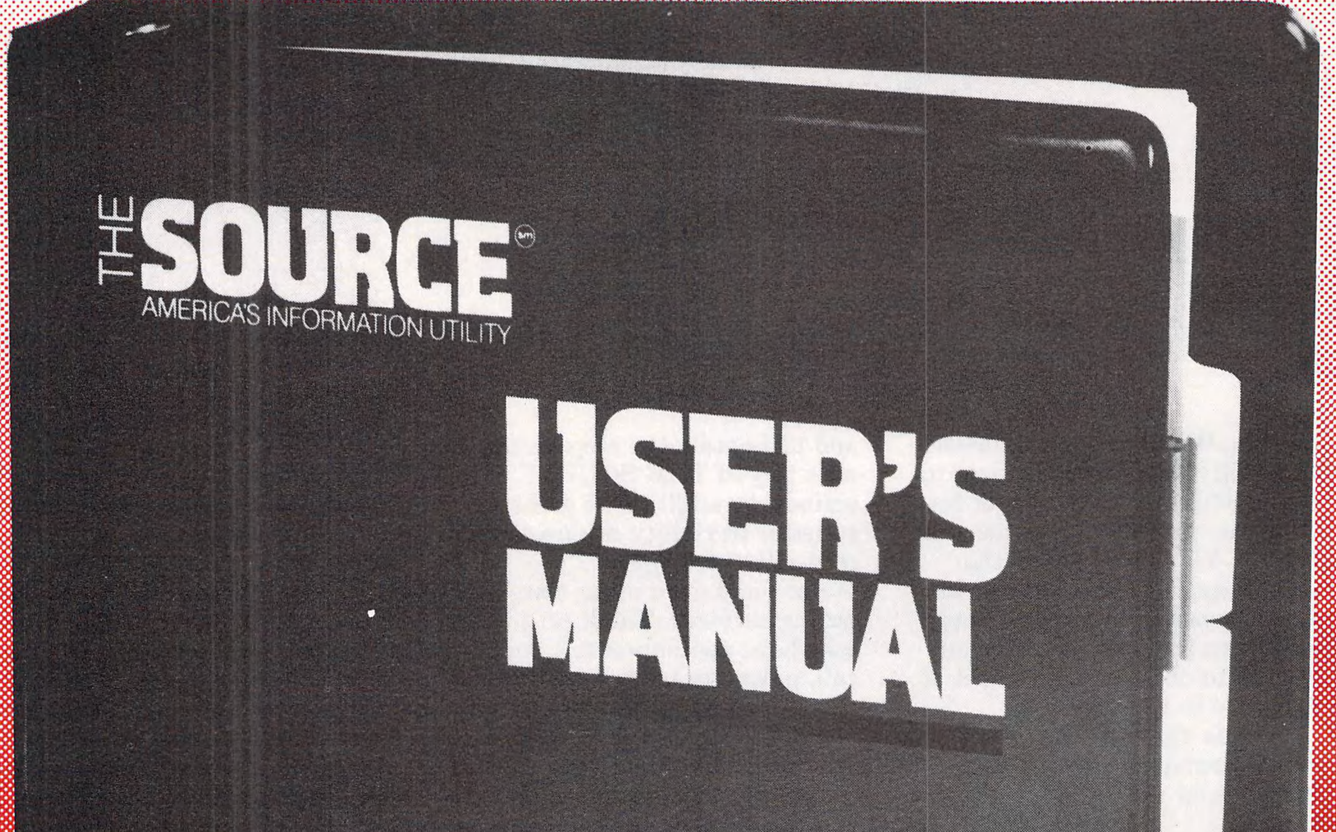
When we fulfill a subscription, we assign an account number and password to the user. We also assign a system number designating on which of the systems the user will perform information processing. This so called *static allocation* mechanism can, at times, lead to some undesirable response problems. Because the user is statically assigned, it is possible for some systems to be extremely overloaded while another is underloaded.

Our goal is to implement *dynamic allocation*, allowing us to designate the system to perform information processing *on the fly*. This form of load balancing will greatly improve the overall responsiveness of the system and ultimately the responsiveness to you THE SOURCE subscriber. In addition, it gives us superior flexibility in directing connection to *different processors* and even other computing services. Think of it as a telephone switchboard. Your call, unknown to you, may actually be routed through hundreds of connections before reaching the destination you dialed. But, eventually you get there, and you never know what happened.

Closely tied to this is the need to *share files*. If your target information processor is allocated on the fly, it is extremely important that we get at *any* data base independent of the processor to which you are attached. We do this now through our internal network. However, we think we can vastly improve this mechanism, increase throughput and do it with less on-line disk storage. That means a big savings to you!

In terms of the Gremlin King: expand the number of kingdoms to six and interconnect them all through state roads and byways. For the Gremlin King to get information from another kingdom, he has to send a truck through rolling countryside, on one-lane roads, with a 45 MPH speed limit. If two trucks happen to use the same road, it is possible they may collide, and cause new trucks to be sent. This is very annoying to the King, as trucks do not come cheap. A rule change would widen all the roads interconnecting the kingdoms and up the speed limit to 55 MPH.

The King is also working his foreign policy to form a union of all the kingdoms so that they may all share requests for information. Instead of requesting a particular kingdom to perform some information processing, a common office would handle the request and forward it on to the kingdom least busy at the time. A further rule change would allow all the kingdoms to share a common warehouse system connected via super highways. The King is delighted in the potential reduction in his royal overhead—and so are we, all of his subjects. ■


THE SOURCE
AMERICA'S INFORMATION UTILITY
USER'S MANUAL
Source Telecomputing Corporation is a subsidiary of The Reader's Digest Association, Inc.

NEW! Shipped Free to Users Early December.

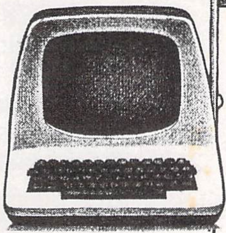
Gain instant access to over 1,200 information and communication services for as little as $4.25 an hour.

They're all at your fingertips when you join The Source,SM America's Information Utility.

The Source can improve your efficiency, speed your work, and reduce expenses in your organization by giving you access to personal and business services that run the gamut. From electronic mail and discount buying services to stock reports and hotel reservations. And in most cases, you can reach The Source with a local phone call using any standard microcomputer, communicating word processor, or data terminal.

SourceMailSM...faster than U.S. Mail, cheaper than most long distance calls.

SourceMail is an electronic mail system that lets you send messages to other Source subscribers, anywhere in the country. Use it to communicate with your field offices or traveling sales representatives. Create your own network to clients, associates, outlets or suppliers. Store information for later retrieval when needed. The Source can even correct spelling errors.



Best of all, communicating through The Source can be cheaper than any other method...including long-distance phone, Telex, facsimile, express mail, or messenger.

Streamline your business operations.

Just feed The Source your figures and it will calculate your taxes, cash flows, equity capital, lease vs. equipment purchase, loan amortizations, annual interest rate on installment loans, depreciation schedules. Use its Model 1 service for financial planning, simulation, and analysis.

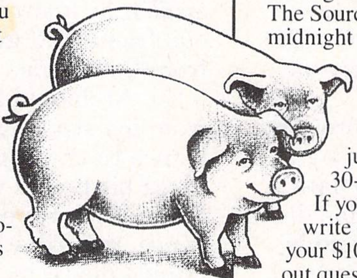
You can use The Source's powerful mainframe computers to write and store your own programs, with computer languages like BASIC, COBOL, FORTRAN, RPG11 and assembly language. Naturally, we give you a private access code so your programs and data inputs are secure.

Your electronic travel agent.

Plan your trips with instant national and international flight schedule information. Use The Source Travel ClubSM to arrange airline tickets, rent a car, and make hotel reservations. Use The Source to check the weather ahead or find the best place to eat using our electronic Mobil Restaurant Guide.

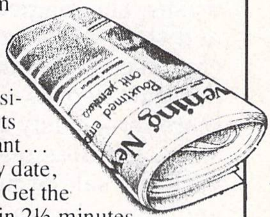
Instant access to the stock market.

Whatever your investments — stocks, bonds, mutual funds, T-bills, commodities, futures or others — The Source will give you updated investment information 22 hours a day. We go beyond mere market quotes to add economic, business, and financial commentary by noted economists and securities analysts.



Get news, hot off the UPI wire.

Around the world or around the corner, find out about the latest news straight from United Press International. You can select only the news, business reports, sports or features you want...geographically, by date, or subject matter. Get the latest update within 2½ minutes of a filed report, or go back to earlier coverage.



That's just the beginning.

There's so much more. The Source has an electronic personnel search network. It lets you barter your goods and services with other businesses. Orders hard-to-find technical and business books direct from the publisher. Gives you a daily review of Washington activities. Lets you order thousands of business and consumer items at discount prices. Maintains your stock portfolio. And we're improving and adding to our subscriber services every day.

Anyone can use The Source.

You don't have to know computer languages or have programming skills. The Source operates on simple, logical English commands. It comes with a complete user's manual, categorized directory, and private sign-on codes.

The Source isn't limited to your office. You can access it from home, or on the road, 22 hours a day. Use it to catch up with office work, or for self-improvement and family fun. The Source will play bridge with you, coach your children in foreign languages, help select dinner wines, give you the latest movie reviews, and more. It's amazingly versatile.

The value with the guarantee.

For all the communications and information services, you pay only a $100, one-time subscription fee and $18 per hour during the business day when you are actually using it. From 6 P.M. to midnight and on weekends and holidays The Source is just $5.75 an hour. From midnight to 7 A.M. the rate drops to $4.25. Minimum monthly usage charge is only $10.

What's more, we're so sure you'll find The Source just what you need, we offer a 30-day money-back guarantee. If you're not completely satisfied, write us and cancel. We'll refund your $100 hookup fee in full, without question. You pay only for time actually used.

See your dealer, or mail card for free brochure

To learn more about The Source, visit one of the more than 800 independent computer stores that offer The Source. Or rush the postage-paid card to get your 16-page color brochure and index of over 1,200 Source services.

Find out how much The Source can do for you.

- - - - - - - - - - - - - - - -

THE SOURCE
AMERICA'S INFORMATION UTILITY

Department MO 1
1616 Anderson Road
McLean, VA 22102

_____Please send me your free 16-page color brochure without obligation.

(name) (Please Print)

(telephone)

(Company if for business use)

(address)

(city/state/zip)

_____Do you own a microcomputer, terminal or communicating word processor?

If yes: ______________________
(make/model)

The Source is a servicemark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Inc.

Gamesmanship

'Tis written in the second Book of the Holy Tibetan Legion, second verse of the fourth secret staff: "Sag asti, nogardk calb yalp ot erus eb".

These holy words were brought to *Sourceworld*'s attention by a California subscriber who uses a control-account number, has dispensed with a password, and is known only to the Hawaiian grandmother of a future employee in the SOURCE Customer Support department. This subscriber plays BLACK-DRAGON on THE SOURCE. His "holy spell" wins him gold, and he has insured his imagination with Woyds of London.

Then there's Archibald, the "character" created to go for the gold for this article. Created at an editor's whim in response to a machine's behest, Archibald began like a shining knight in an *Excalibur* filmclip: high in intelligence, massive in strength and endurance, gifted in dexterity, and profoundly wise. Archibald gained these attributes from THE SOURCE. His only drawback was a pernickety predilection to Wagnerian music.

Archibald began his trek down the staircase, north along the hallway. He could visualize the 9,000 snakes from *Raiders of the Lost Ark* on the monitor in front of him abbreviated by crosses and dashes. He met his first monster, and to it hurled a massive fireball. Forward went Archibald, armed with lightning, plague, ESP, and a self-healing capacity. Unfortunately, when he needed the "holy words"—an option given gratuitously by THE SOURCE—he was unarmed: he knew not our mysterious friend and game champion from California.

So, Archibald lost "hit points" from his store awarded at the entrance to the dungeon. And these hit points were his life force. With refreshed intelligence, refined strength, more nimble dexterity, and savvier wisdom, Archibald started again another time.

There faced him then the gray ooze, the green slime, the giant wasps, the magical swordsmen, and the yellow mold. He slithered deeper and deeper into the miasmic depths, meeting ever more ferociously conceived monsters. Vendors offered to help with the sale of potions, spells, and magic books (but never the right volume from Tibet!)—Come on, Archibald: Dee-fense, Dee-fense!

But Archibald's valiance, inspired by tales of y'oer, only found epic sinistry repeating itself: even spiked pits were welcome relief from the Trollaides attending the Flesh-Golem; gold collected was better turned to weapon lead to fight off the Undead Bears and the ghostly Wights.

Yet, as Archibald began to die, he began to live even more. Imagination supported by character began to care: Archibald *had* to reach the Ultimate Monster, even to brave a wolfgang: the Arch Devil Asmodeus. —But poor Archibald had no more points; his SOURCE for life had not one Return left. Archibald, curser of the grave, was dead.

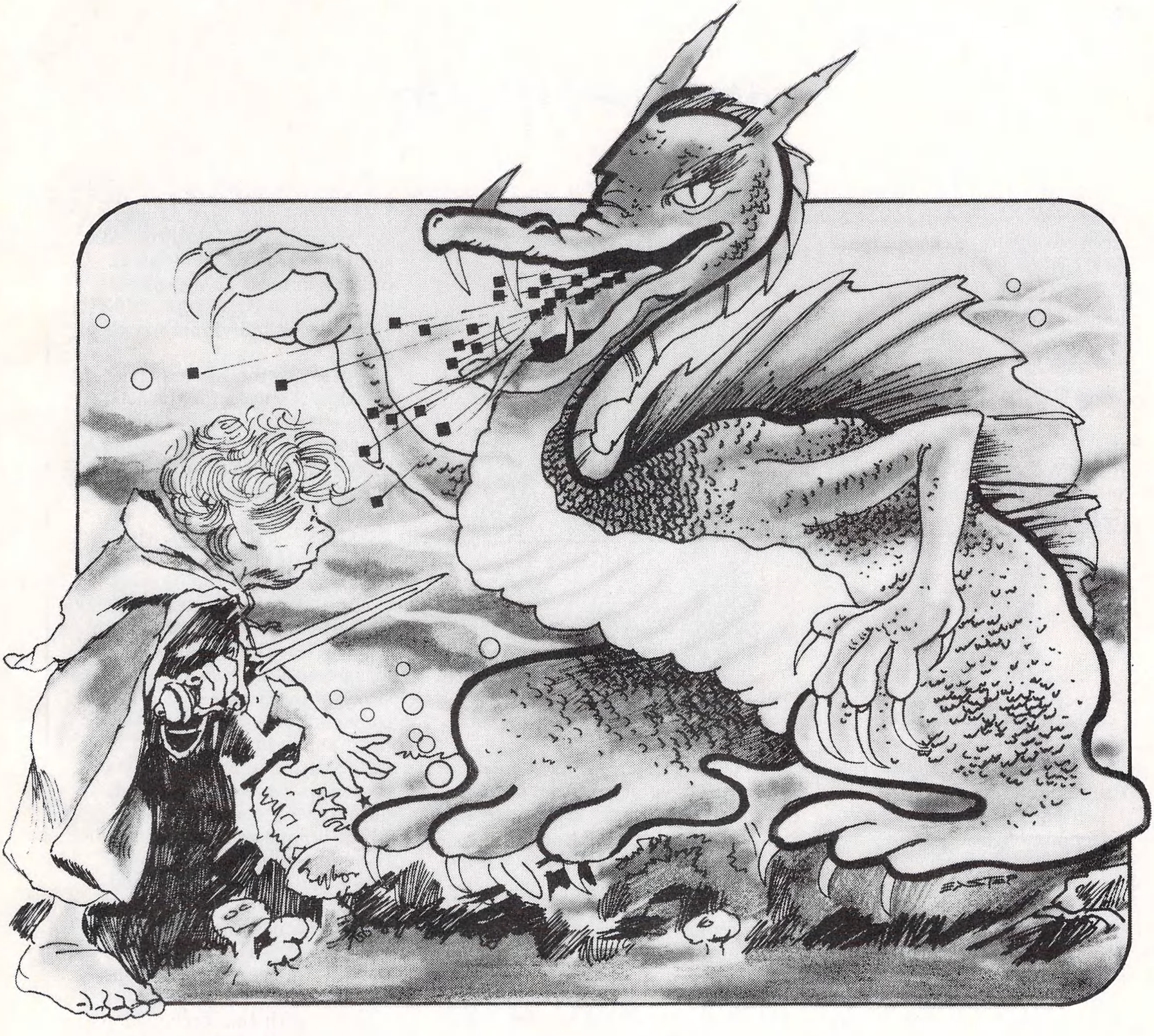
Now, that's the irritating thing about this game: your hero, your alter ego, *does* die. He ventures forth as many times as you wish, as long as that life force has its points, but when gold conversion to points is no more, when the rock exchange is gone in a panic, the hero is banished from electron heaven forever.

And The Source is noble witness: "You, Archibald, are victim number 3,678 of the Black Dragon." Archibald, our dear character, is retired to Valhalla, the home for dead heroes in Teutonic lore. And, in this case, the heart was glad: Archibald loved Wagner; he would be happy with the eight Valkyrie maidens, spending prime time to memorize their names, to drink mead from Wotan's horn, and to welcome other mere mortals across a Rainbow Bridge.

—But . . . But what if dear Archibald, noble knight of new-found fable, *had* won, *had* healed himself significantly from the Hobbitt to mount an ESP attack against the cosmos-art of Asmodeus? What then? He would have been admitted to the Hall of Fame, to meet perhaps Casey Stengle instead of Siegfried. —Ah! Such is life!

PLAY BLACKDRAGON *is* such an experience. Naturally, it depends on *your* imagination; it was planned that way by the gifted programmer Robert Maples. Maples has added *feel* to a game, and it's as real as you'll let it be.

So back to California: our subscriber there is not as esoteric as



one would think; he's a typical SOURCE user: 37 years old, with a little more than a college education and a family income just short of $50,000 annually. The chances are that he is employed as a businessman/manager and reads *BYTE* or *Creative Computing* magazine. And he has a business reliance and entertainment outlet through THE SOURCE. He's got imagination on both fronts.

When we asked his permission to publish the holy words his hero has uttered in the stygian labyrinth, we received his permission with one proviso, offered in draconian spirit:

The Dragon is of mind and
length so nimble
to twist around infinity's old
symbol;
With life's own circle owed to
magic's stunt,
live and read from back to
front.

"Sag asti, nogardk calb yalp ot erus eb." ■

Interview

with Aksel Olesen

Aksel Olesen is Vice President, Technology, for THE SOURCE. Prior to his position with THE SOURCE, Mr. Olesen was Manager of Advanced Systems Development for the General Electric Information Services Company. His work with GE began in 1956. Mr. Olesen is a Dane and has his degree in Electrical Engineering from Copenhagen Teknikum.

Aksel Olesen

Q: Aksel, for THE SOURCE, you're a "systems architect", a title that is as new as the telecommunications industry itself. Let's talk about the *why* of telecommunications, the why of the edifice: in practice, THE SOURCE serves new needs. As a specialist in a specialist industry, why have telecommunications and the new needs come about?

AO: Well, it's really not such a young industry as you are saying. Telecommunications started over 100 years ago and, as you now can see, after the Second World War, it took off. In the United States there are one or more telephones in every house. I think it's the Americans' needs to communicate with each other in so many various forms that have continuously been driving this kind of development.

Q: You mean it has been a natural evolution: from the drawings on caves to smoke signals to drum rolls to short wave radios to television to telecommunications?

AO: Yes. And there's probably one more factor, which is one of my favorites: the United States is filled with impatient people. Nobody can wait in the United States. If you ask an American to wait two years to get a car delivered, you will have a hard time finding him, whereas that's not uncommon in other places in the world. So this impatience in the United States is what has been driving this progress. For instantaneous answers, instantaneous communication is the driving force.

Q: Where's it all going to go?

AO: Well, the next 10 years are going to be a lot of fun. We have just *started* what we all call the "information explosion" in relation to what is possible to give to each individual in every home.

Q: Are the innovators then creating the need for the services that have already been innovated? Or are the needs really there, and the innovators rushing with technology to service them?

AO: It is hard to say what comes first, but let me use a comparison with the introduction of time-sharing as a concept and as a commercial product in 1965. What that meant in 1965 was essentially that it made possible for every scientist and user to have a desk-top computer right at his fingertips thru the time-sharing approach. Now of course we have desk-top computers everywhere, but this whole innovation showed that there was a market for something that nobody really had tried. So, whenever technology presents a new opportunity and the need at least *seems* to be there, then the market mushrooms.

Q: So, with the force of impatience, we can always say there's the need for speed?

AO: Yes. You want instantaneous answers; we are living in the push-button age; we want to push the button and get the answer.

Q: You have been with THE SOURCE 3 months and have an overview from tremendous experience with the General Electric Company, an overview of just about every dimension of technological information service. How did you objectively view THE SOURCE when you applied to work there?

AO: That's a reasonable question. First of all, I look back and ask myself when was the period of my life in which I had the most fun. (You have the most fun when you're trying to build and create something that is new and untried. At least that's what gives *me* satisfaction.) In the era from '65 to '70, in the time-sharing era where GE was involved in building their time-sharing thrust, I was right in the middle of it all. It was a relatively small business; it was small in size just like THE SOURCE. It had the small company atmosphere as a new business enterprise, and there was a lot of fun building it. Once it gets very big, some of the fun sometimes is lost.–So I was looking for a new challenge, sort of the same thing, and THE SOURCE fitted that very well.

Secondly, the GE approach was to serve what I call the Fortune 1300 companies, the very large companies, and the large service companies in banking, insurance, and so on. It really was not aiming at the consumer or the small business market, which I believe is completely untapped. So, coming to THE SOURCE was like opening up a new frontier in a way, and I like that challenge.

Q: What do you feel has brought about the growth of the data base industry so suddenly, in just 2 years?

AO: Well, it's really the speed with which technology is moving: the options for the consumer and the small business markets are continually much more cost-effective. It's innovation and technology, it's the proliferation of investment in telecommunications. Ten years ago, there was barely a satellite hanging up there! And now we have so many satellites we don't know what to do with them sometimes! So this whole proliferation has made it possible for technology to be related meaningfully to new markets.

Q: As a systems architect in the telecommunications industry you see a mixture of the humanistic and the industrial. How does a systems architect bring together art and science within a new form of technological innovation?

AO: Well, I see the architecture like a building of some kind, a large structure. It has to accommodate the objective that you set out to fulfill. How it's displayed artistically and so on is a whole different set of considerations, which I do not pretend to know well. But I think that the merits THE SOURCE had when it was acquired by The Reader's Digest were the structural aspects of delivering information in a form that the consumer market and all individual human beings could understand. I think by systems evolution, we can now spend more machine resources to assist the editorial presentation so that the product can be better absorbed by the user.

As an example, there are constant pressures to expand the capability of THE SOURCE. The approach that is now being followed in addition to some of the things we have like key-word search and other methods of presenting information to users, is a very high emphasis upon the option of a *menu* driven SOURCE. This is presenting in an easy selection manner what you want to get out of THE SOURCE. It's a very direct introduction to information in an electronic manner and, at the same time, a lead-in to use more sophisticated methods as you become more proficient in the process.

I have a very similar sort of long-range program in mind that is related to providing what I call "search engines" for the future. There are a number of areas where the government is looking at how to search and retrieve information of a more complex nature from large data bases. And some of this will in the future spill over into the technology we can provide from THE SOURCE to give users an even broader and more extensive capability to search and get information.

Q: Let's discuss content and response time. On the content side, how do we know what the public needs?

AO: We have some good ideas and some good feel for what some of the needs are. I do not pretend that we know all the answers because we are in the beginning of an industry. It's almost like when Henry Ford, as the story goes, was asked why

▶

build a car when there were no roads! He went ahead and built the car, and somehow the roads were there. I think that, in a similar manner, we are providing capabilities that provide what I call *real-time human interchange and availability of information* that we probably cannot even visualize at present. But we know that today there's a crying need for very simple local bulletin boards, where people exchange experiences that relate to their lives and what they are doing. That is proliferating right now, and THE SOURCE is one means whereby you have these electronic bulletin boards.

> *"The menu driven SOURCE is another step to provide interaction with the users so that the user knows the system is responsive."*

Another thing we find is that we are just scratching the surface in *electronic publishing*. If you just repeat what already exists in *past* publishing methods, it probably is not going to be very effective. But if you take advantage of the new delivery vehicle and form and then present the information so that you get what you need, *that* is very appealing. This is what we are experimenting with. It seems very, very evident from many aspects that electronic publishing is going to take a somewhat different form than past publishing methods, and it's going to provide some new dimensions of information that we can't imagine yet.

Q: Isn't this basically the same kind of thinking that surrounded the birth of The Reader's Digest?

AO: I think that that is a tremendous analogy, and I suppose it's another reason why I joined THE SOURCE. I was impressed with this combination of The Reader's Digest base of editing and marketing being married to the new technology wave. That's what THE SOURCE represents now. It was a tremendous challenge that I couldn't resist.

Q: Now we've discussed content; what about response time?

AO: Response time is again one of those things that's related to the *perception* of just how fast one should get information. As I said, people are impatient. They can't understand why they can't get things instantaneously, but look: if you are doing some serious shopping, you go around in your car from store to store, you look at ads in the paper, you make a number of phone calls, and so on. Before you have the result, it is sometimes days and hours. Now, if you visualize doing that on THE SOURCE in a similar manner – doing some home shopping – it is not unreasonable to think that it will take you a little time to make up your mind and to retrieve all the answers and so on. So I don't believe that it is fair that you should have every answer in three seconds. I think it can take more time for an individual to canvass all his options. I believe that the electronic medium in this case will provide you with a much faster response than the equivalent that you're used to. Now, if one thinks along those lines, then the response is *tremendous*.

At times, I believe that people say, 'well why isn't it answering me back?, and I say it's because we have not yet perfected our human *interaction with the system*. I think that, in the future, we will continually improve and, if you ask a question or expect a response, if we cannot give you the answer instantaneously, we *ought to tell you we have heard you and that we're working on the answer* instead of just having you there with nothing. A positive response of some kind is in a way improving responsiveness.

Q: What steps are being taken now along with the menu driven system to improve response further?

AO: Well, we are doing several things. The first thing is that we now have for the first time in SOURCE history the capacity to handle our user load, and also to handle the anticipated growth. Right now, we have 5 systems that are serving our users and we have a sixth system as a spare, which means that if one system goes down we can take the spare and configure it. It takes over the other system and, a few minutes later, we are continuing with the original configuration. So capacity is being handled, which is very important.

The second thing is that we are evolving with the *software structure* as fast as we can to give the best possible performance and responsiveness.

And the third thing is the human interface for the menu approach. The menu driven SOURCE is another step to provide interaction with the users so that the user knows the system is responsive. But, now, even further, we are upgrading the operating system with more comprehensive through-put capabilities. Essentially, this means that handling the traffic to the storage system is going to be vastly improved. For example, we expect that a system will handle about 50% more traffic to the storage system where we retrieve the information. That's a good example of trying to improve the responsiveness. It's in process right now and will be completed within the next 60 days. – We will have further innovation as time goes on, but these three things are really moving right now to improve responsiveness.

Q: Now, an architect must know the social significance of his construction. What are the social overtones of such telecommunications innovation within the impatient society?

AO: Look at the young generation! I'm always impressed when I talk to somebody in high school, how interested they are in modern technology in modern science. And if you ever visit the Air and Space Museum at the Smithsonian, you see the tremendous inflow of young people looking at all the innovations. Also, they are being exposed to the Information Age by using very intelligent hand calculators. They're exposed to actual computers in school. As a result, they expect that through very simple methods, through the telephone or whatever, they will have *all* available to them! The young generation is positioned to ride the technology wave, the information wave, securely.

Small businesses have a crying need for what I call *information in a timely manner*. They have to make decisions fast; they have to be sure they can obtain answers for their customers in many ways; they are being pressured by larger companies that have many more answers. So small businesses are right now being pressured to survive by having this kind of instantaneous information, and I really believe that the new generation with their sophistication and expectations are going to fulfill the Information Age.

If I compare the Information Age, let's say, with the Steam Age, we are a little bit past the point where James Watt was pushing the first steam engines into the era. We too are just into the beginning of the whole new era; we have not by any means reached a peak or plateau. We are maybe 10% into it all. When you think of the year 2000, it is very hard to imagine what communications will be. Probably everybody will have what science fiction suggests: a communicator with you always, no matter where you are.

Q: How specifically does one get the best out of THE SOURCE?

AO: I think there are generically probably four main needs that are being filled. First of all, I believe that the *timely news of information* in general is the thing that drives many people in their decisions to do things. Now, you can say, well, that you get news from radio, from television, and newspapers and so on, but what THE SOURCE provides you is the resource to selectively *carve out* the news items that are important to you for your decision making.

As an example, if you are a business individual worried about certain materials which only come from one country, you would certainly like to know if there is some kind of flare-up politically in that nation that

▶

will help you make decisions. And you can get this timely news selectively, related to your area of concern. – We are expanding that whole arena in the new offering by THE SOURCE called Source * Plus.

Another thing that has really caught on like wildfire is electronic mail communication and the exchange of information and ideas through electronic bulletin boards. There's no question that tremendous needs are being served here.

The third area that I think has keen importance to users is that every so often you need to find specific information for business or social purposes. THE SOURCE provides a whole array of data bases that search for information that is relevant to what you want to know at any particular time. This capability will mushroom over the next years. It will probably boggle our minds what we will have stored in information by 1990!

And a final example is the fulfillment of our middle name "Telecomputing". There are many, many calculating, computing services on THE SOURCE that save time, that are always ready to make calculations and bring results to life. THE SOURCE never takes a vacation; you can always get the work done.

Q: And the cost?

AO: I think we are indeed very cost-effective. We are continuously fighting to get the cost as low as we can, but the world is inflationary, and communications costs are going up. We have just recently had many of our rates almost double in communications during the last several months because of the way the rates have been approved by the government, raising some of the tariffs, etc. We are continuously fighting that.

Q: After your first months with THE SOURCE, what's ahead, say, six months from now?

AO: I think that we probably will be growing at a tremendous pace and, at the same time, strengthening our ways of doing the actual business and accomplishing the total evolution in a professional manner so that we can embrace growth effectively. I have a definite goal: in the reasonable future, I want to see The SOURCE 10 to 20 times bigger than it is today. I think that the architecture that we're putting into place will be able to accommodate that. At the same time, I hope that we can preserve the small company spirit which provides the atmosphere for quick innovation and speedy growth. When we look at the very large companies that have emerged in the United States over all these many industrial years, we know that they were once small. When they were small, they had an entrepreneurial and fast moving spirit. We have that spirit now, and I hope we do not lose it when we get bigger.■

The powerful package:

Super-Text II™

Allows you to learn the basics of text editing quickly. Advanced features will meet your expanding word processing requirements far into the future. $150.00

plus Form Letter™

Provides automatic repetitive printing of letters. Allows insertion anywhere in a letter, also direct entry, optional prompting, special commands. $100.00

plus Address Book™

Stores names, addresses, and telephone numbers and prints mailing labels. Has user-definable category system. $49.95

From the leader in word processing for the Apple II or II Plus

MUSE SOFTWARE™

330 N. CHARLES STREET
BALTIMORE, MD 21201
(301) 659-7212

Apple II is a trademark of Apple Computer Corp.

Call or write for information and the name of your nearest MUSE dealer

Electronic Book Center

—Volumes of Support On-Line

Rollin Dudley turned on THE SOURCE in Portland, Oregon. The information he recorded focused on three book titles: *Caesar's Gallic War*, *Principles of Interactive Computer Graphics*, and *FORTRAN 77: Language and Style*. Dudley didn't bat an eye: esoteric books, books of science and technology are part of his job; and so is THE SOURCE.

The three titles were book orders from SOURCE users coming into the Professional Book Center, a subsidiary of Book Centers, Inc. SOURCE users can order any hard-to-find book published in North America through the on-line Electronic Book Center: command BOOKS. Book inquiries and orders are processed *immediately*; the more technical the titles the faster the service!

Don Chvatal, Book Centers Vice President, is proud of the 40,000 titles held in inventory in Portland. This inventory automatically includes every science and technology volume published by the major publishers like McGraw Hill, John Wiley & Sons, Academic Press, Pergamon, Plenum, Von Nostrand, Elsevier, Avie Publications, and Addison-Wesley. "We specialize in special research needs," Chvatal says, "so books you've heard about but can't find are routine to us!"

The Professional Book Center won't have a copy of *Gone with the Wind*, but they were able to provide delivery of *Microcomputing Interface* within 48 hours to a SOURCE user. "One order through THE SOURCE," Dudley continued, "was for Teller's *Fusion: Magnetic Confinement, Vol. 1, Part A*. The SOURCE user had heard about the book, which we knew wasn't yet published. We've got the order, and as soon as it appears, it will be on its way to the SOURCE customer."

Through BOOKS, The Electronic Book Center on THE SOURCE, users can immediately track down the technical books they need. Local bookstores won't easily special-order such technical books since specialized inventory is far beyond their routine sales traffic. If a bookstore does place such a special order for a customer, the wait for the book is often 4 to 6 weeks or more. "Phaser technology" or "psychosomatic accidents" are themes that create impatience for sure!

If the Professional Book Center is unable to fill an order immediately, the SOURCE user is so advised and can commission an order direct to the publisher. Because of its stature in the field, the Professional Book Center can get the order filled as quickly as possible.

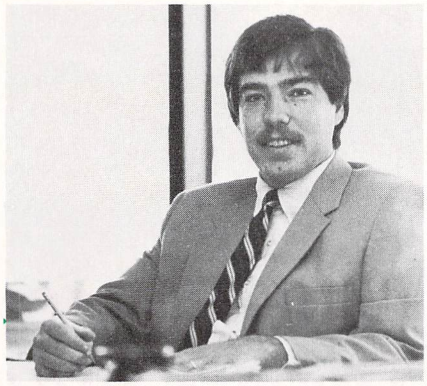
For out-of-print books, if the Professional Book Center doesn't have a copy in its special inventory, the user will learn that as well.

All transactions are made quickly for SOURCE users, and book charges are automatically made on-line through VISA or Master Charge credit card, with $1.95 added for postage and handlng.

Two ways to define the Professional Book Center's specialization even further is to note that they carry no paperback publications and very few novels. "Our inventory is definitely medical and technical," Dudley continued. "We don't compete with any normal bookstore."—And another way to bring life into computer contact with these experts is to know that they also have a keen sense of humor: when *Sourceworld* was fishing for titles that might or might not be in their ready technical inventory, we inquired about *The Joy of Sex*. Dudley promptly responded with a cross-country smile, "Of course we have it; it was written by a doctor!" ■

User Publishing Under Way

—Whaddaya have to say?



Jim Rutt

So you want to be a publisher, a writer, pundit, financial commentator, political analyst–what have you! You want recognition and financial reward for what you've got to say!–It's now possible on THE SOURCE through its "User Publishing" program.

For a good year already, SOURCE users have done more than fill POST categories with personal commentary and creation: they've innovated technologically to allow the sharing of what they have to say. Ways to cross systems and access open files have entered the keyboard vocabularies of busy SOURCE users. Many of the files open for perusal are listed under POST announcements and under DATA SHARE.

THE SOURCE applauds all this innovation and now announces its own contribution to make it all easier: in fact, *to help any user become his own recognized and rewarded publisher*!

Easy Access: The works created by user publishers are now very easy to access, thanks to a Menu. On THE SOURCE, type the command PUBLIC. There's your menu, listing by number all user publications. Next, make your selection by menu number, and that's all there is to it!

Easy Royalty: Each user publisher, each user who has created a menu-listed creation, will receive a royalty payment from THE SOURCE, dependent upon time usage logged by readership of his or her work: the standard 9% commission of the time usage gross will be paid to the user publisher monthly. That can mount up: if the item catches on because of content and good publisher promotion on-line through POST and were to log 400 hours of evening and weekend readership usage during the month, the royalty payment that month would be $207!

The first group of publications listed under PUBLIC include "Sourcetrek Magazine" published by Dave Hughes (TCE054), one of the most creative SOURCE pioneers who has championed user participation since the very beginning; "HamSource" by Dwight Ernest (TCU366); "Helpfiles" by Ed Chapman (TCV176); and "Be Your Own Lawyer" by Floyd Grant (TCW543).

Managing Editor

Every publisher needs a managing editor, and he's Jim Rutt, Market Research Analyst and Editor of User Publishing at THE SOURCE. Rutt's degree in management from MIT and his four years experience in textbook publishing with Wadsworth Publishing of Belmont, California are on-line to help SOURCE users say what they want to say

Rutt's SOURCE number is TCA080. Any user who's got something to publish on THE SOURCE, something to attract readership and log royalties, should contact Rutt by SOURCE Electronic Mail: simply tell him what is already written and how he can access it to review it. Rutt will then make contractual arrangements with the user and place the work onto the PUBLIC menu!

Shortly, THE SOURCE will make available on-line special software to facilitate the organization, sorting, searching, and formatting embellishments that user publishers may use for their creative works. For the moment, the existing file, text editor, and compiler resources of THE SOURCE (see DATA SYSDOC) get things done, but it will be even easier soon.

Come One–Come All

Users now can get into the telecomputing business through on-line publishing. Anyone who's got views on anything and wants to share them–and especially knows that others will indeed enjoy them as well–should put them down on-line and contact Jim Rutt. Remember what publishing "100 Ways to Cook Hamburger" did for someone; maybe your spaghetti sauce recipes can match that! Remember that "how to" books are always market leaders; what do you know how to do best of all? Even joke books . . . just look at your audience: 12,000 plus and growing strong. You like "Adventure", but you've created a game even more engagingly complex? Share the intrigue!

Final Bonus: THE SOURCE will take the real success stories, the most enduringly popular publications, and make them formal databases within its national promotion! ■

THE WORLD IS YOURS

Data communications can open up a whole new world to you and your computer. A world of the future. Now. A world full of information resources, time-sharing computer systems, and electronic "bulletin boards." All you need for admission to this world is your CP/M®-based computer, a modem, and the proper software. That's where we come in. We have the proper software. CROSSTALK,™ our smart terminal & file transfer program for CP/M, allows you to call into thousands of dial-up computer systems around the world, and communicate with them. REMOTE, our CP/M remote console program, allows you to operate your CP/M system from a remote terminal, giving your computer added flexibility and usefulness.

CROSSTALK

- Allows your computer and modem to communicate with other computers, including other **CROSSTALK** systems, public-access "bulletin board" systems, main frame computers, subscription "Information utilities" such as THE SOURCE,™ and much more.
- Simple, easy to use "plain English" command structure makes **CROSSTALK** easy to learn, yet provides a powerful tool for exchanging files, capturing data, and controlling modem parameters.
- Concurrent printer and video allows you to print data while viewing it on the CRT.
- Fully error-checked file transfers using 16 bit CRC protocol. Protocol transfers allow exchanging files which are larger than the system's memory.
- Built in "DIR" command.
- Data capture allows saving received data onto your disk.
- Auto-dial, redial, and auto-answer (if supported by modem).

Available for the following modems: Hayes 80-103a
Hayes Smartmodem™
Hayes Micromodem 100™
PMMI Communications MM-103
Hayes Micromodem II™ for the Apple II®
Any RS-232 modem, including 1200 baud modems

REMOTE

- Allows **remote** use of your computer from a **remote** terminal location.
- May be called as a subroutine from BASIC, PASCAL, or any other program to allow answering under program control.
- Provides nulls if needed for printing terminals.
- Uses less than 1k of memory space.
- Automatically selects proper baud rate.
- Available for S-100 modems (Hayes and PMMI) only.

For details, see your computer retailer, or contact us directly.

MICROSTUF™

Microstuf, Inc.
Box 33337
Decatur, Georgia30033
(404) 491-3787 (voice)
(404) 939-1520 (demo system)

Smartmodem™ and Micromodem™ are trademarks of Hayes Microcomputer Products, Inc. / Apple is a registered trademark of Apple Computers, Inc.
CROSSTALK is a trademark of Microstuf, Inc. / CP/M is a registered trademark of Digital Research Inc.

DEALER INQUIRIES WELCOME.

Better Programming on THE SOURCE

by Wes Padoll

When using the programming facilities of THE SOURCE for the first time or as an experienced programmer, there can always be room for improvement.

It would be very easy for us to write structured programming rules that you would instantly ignore, or we could bombard you with advanced techniques of an obscure language. Instead, here are some organizational reminders that beginners need—that seasoned programmers easily forget.

Organizing the Problem

When programming for yourself or someone else, you need to be able to explain the problem in detail or continue working on understanding the problem. Structured programming is nothing more than thinking the problem thru correctly. The more planning that you do before you start to code, the more you improve design and function of the program.

Break the program down to basics or sub-problems. Organize the problem into logical sub-problems. Each sub-problem should be one task; if it is not, continue to break it down into sub-sub-problems.

If you have organized your problem correctly, all *related* statements will be together, and you could "play computer" and *manually* trace thru your problem just as a computer would in order of execution. A program flow-chart could be drawn for the problem at this time.

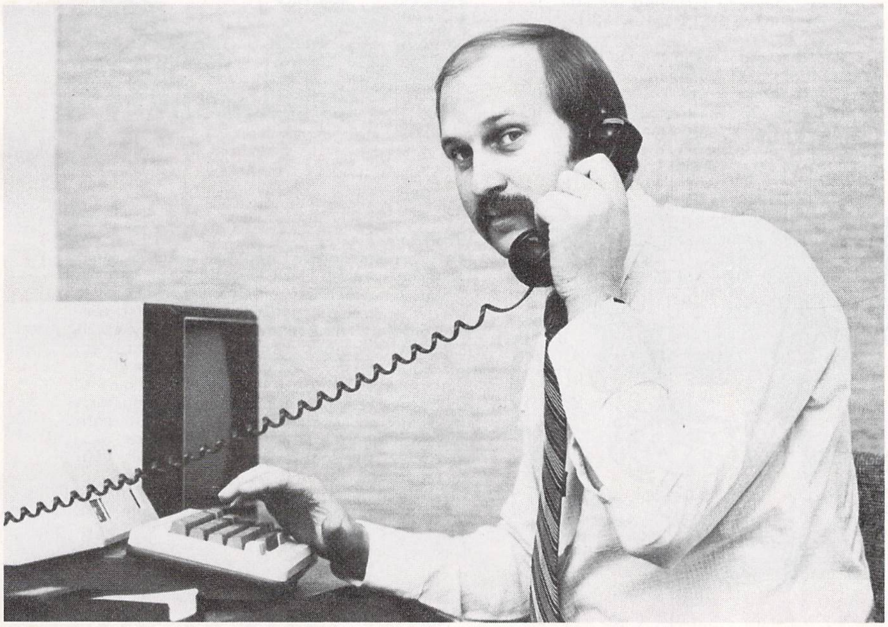
Program complexity or lines of code should never be used to measure *quality* in a program. Poor performers always make their programs harder than they have to be. Because your needs will change, your software must be designed to be machine-independent, language-independent, and easily alterable in the future. Normally the error rate (bugs) of programs is directly related to the size of the program, and the effort to develop a program increases exponentially to the rate of complexity.

Final Checklist

At this time, be sure to look thru the Subroutines Manual and the related language manual: the task you need to code may already be available! Subroutines save you from duplicating someone else's work.

As the last checks before you start coding, see if you or anybody else who will run your program will be able to run it with a minimum of tutoring; check that your prompts are organized for ease of interaction; that you have avoided using prompts that are obscure abbreviations, mnemonics, acronyms, or unusual symbols. (i.e. SSN should be social security number); that your output has relevant messages that explain what the output is (Don't ever just display a number).

Now that you are ready to input the program using the editor, your style can determine if the code is easy to implement,



Wes Padoll, Director, Applications Programming: THE SOURCE

easy to understand, and hopefully reliable. Always use standard widths and indentation techniques to make your program easier to read. Try to insert blank lines or blank comments between major/minor selections of the program.

You should include an explanation for what each major program segment does, but you don't have to explain the obvious. By briefly describing what you did and how you did it, you will be able to update or alter the program in the future. Imbedding comments within code is not desirable since that makes the code harder to review.

Use meaningful names in your program when possible (some languages don't allow this!) and follow spelling and spacing format rules. When you get to debug your program later, you will get the opportunity to determine what the variable acronyms, mnemonics, or abbreviated 'cute' names stand for.

Input into your program should be formated to accept natural responses (yes or no, etc.) or variations of the response, (Y or N). You should process your input so that the calculations and decisions are easy to evaluate, read and understand.

The process of your program should be constructed with three basic actions: 1) Basic (one after the other) actions; 2) Looping actions; 3) Binary choice actions.

If your program cannot be broken down into these three basic actions, your program will probably be difficult to trace and may yield erroneous results. Use loop counters to ensure your loop has not gone into uncontrolled repetitions, (simply use the 'greater than or equal to' rather than 'equal to' only command to stop a loop).

"Quick and dirty" formating of output is not even a temporary solution. Since the *output* is why the user is using your program, it should be the most important part of the programming. The output is the reason for the very existence of the program.

The user of your program should always be provided with an elegant way to end the session and not have to resort to disaster techniques to stop your program!

Even if you never undertake the task of coding a program, understand the techniques of good design and what the well engineered program can and should provide the user. This can enhance your everyday business problem-solving skills and your enjoyment using THE SOURCE. ■

THE PROGRAM STORE

Our Most Popular

Unbelievable Realtime 3-D Graphics!

FLIGHT SIMULATION

From Sub-Logic
A graphic tour de force that will truly captivate you. If you haven't seen this brilliant program, you haven't fully utilized the capabilities of your computer! During FLIGHT SIMULATION, you instantly select instrument flight, radar, or a breathtaking pilot's-eye-view. But be sure to strap yourself in -- you're liable to get dizzy!

Once you put in some air time learning to fly your computer head for enemy territory and try to bomb the fuel depot while fighting off five enemy warplanes. Good Luck!

Apple II 16K tape....$25.00
Apple II 32K disk....$33.50
TRS-80 16K tape......$25.00

MICROSOFT ADVENTURE

Prepare yourself for the adventure of your life as this classic fantasy/logic game takes you into the world of the Colossal Cave. Your computer is your guide as you search for treasures, solve puzzles, explore, and avoid the dangers that lurk within.

Complete version of the original Adventure, originally written for the DEC PDP-10 in FORTRAN. The program has been translated to bring you all the enjoyment in your home computer.

Special

TRS-80 (32K disk), Apple (32K disk) ~~$25.95~~

SPECIAL SAVE $10: $19.95 thru 12/31!

DEATH-MAZE 5000

From Med Systems
A new breed of adventuring! Venture through a graphically represented 3-D maze, with halls that could dead end -- or recede to infinity. Step through the doors or drop into the pits. Will you encounter monsters and mayhem, or will you be treated to useful objects and information? Will you ever get out alive?

TRS-80 (16K tape), Apple (32K tape) $14.95
TRS-80 (32K disk) $19.95

Also Available: ASYLUM for TRS-80 (16K tape) $14.95

TRS-80® · APPLE® · ATARI®

The Program Store carries more than 1000 programs for TRS-80, Apple, and Atari. If the program you want is not listed here, call us: we probably have it in stock!

NEW

VOYAGE TO VALKYRE

By Leo Christopherson from AOS
Combine the animation and music techniques pioneered by Christopherson with the challenge of his first fast-moving arcade game and you have VOYAGE TO VALKYRE!

You speed through a magical maze guarded by ferocious birds that swoop down to attack if you don't get them first. To list all the play and options of this exciting game would take the 16 pages of instruction included.

Tape: TRS-80 (16K) $34.95
Disk: TRS-80 (16K), Apple (48K) $39.95

LUNAR LANDERS

From Adventure & Stoneware
These are realtime action simulations of a descent to the Moon. In common, they all have super graphics, realistic movement and control, and sound. The skillful are rewarded with high scores, the clumsy can look forward to spectacular crashes!

LUNAR LANDER: TRS-80 & Atari (16K), $19.95
TRANQUILITY BASE: Apple (32K disk), $24.95

FILE MANAGER 800

From Synapse Software
An extremely powerful and versatile database manager for use in both professional and personal applications. You define the format of the records to be filed and FILE MANAGER 800 gives you full control over sorting, searches, and retrieval.

You can store up to 1000 records on each disk and the program will allow up to four drives. Access to any record takes less than 1.5 seconds, and most commands can be entered with self-prompting single keystrokes.

Atari (40K disk)...$99.95

NEW

Crush, Crumble and Chomp!

From Epyx
It's a monster movie, and you are the monster! You can be The Glob, Kraken, Mantra, Mechismo, Arachnis, or Goshilla -- or even design your own "custom" monster (disk version only). This hilarious action game is loaded with graphics and sound as you practice your villany. With 6 monsters, 4 cities, and 5 game objectives, you get a choice of more than 100 possible scenarios. A monster's life is not all carnivorous crunching, though: The combined resources of the police, science, and armed forces are bent on your destruction.

TRS-80 (16K tape or 32K disk), Apple (48K disk)...$29.95
Coming soon for Atari.

GALACTIC SAGA

By Douglas Carlston from Broderbund/A.I.
Take control of the Galactica as you navigate through an uncharted 3-D universe. In GALACTIC EMPIRE, you attempt to unify a star system that is randomly created each time you play. TRS-80 (16K tape) $14.95, Apple (48K disk) $24.95, Atari (32K tape) $19.95.

GALACTIC TRADER pits your bartering skills against those of the other inhabitants as you try to accumulate riches and power. But watch out for the assassins and the energy cartel -- they're out to getcha! TRS-80 (16K tape) $14.95, Apple (48K disk) 24.95.

Diplomacy and deviousness play equal parts in GALACTIC REVOLUTION. It's a game that combines tactics, social manipulation, and Machiavellian ruthlessnes. For more intrigue, this game allows more than one player. Sound effects. TRS-80 (16K tape) $14.95, Apple (48K disk) 24.95.

TAWALA'S LAST REDOUBT makes you the rebel leader. You must intercept and decipher the messages of the dethroned Emporer Tawala in order to initiate an assault on his exile kingdom. Apple (48K disk) $24.95. Coming soon for TRS-80.

Control The Whole Universe -- Get All Three!

Visit our other stores: Seven Corners Center · Falls Church, VA & W. Bell Plaza · 6600 Security Blvd. · Baltimore, MD

VISA · master charge

TO ORDER CALL TOLL FREE 800 424-2738

For information Call (202) 363-9797

THE PROGRAM STORE
4200 Wisconsin Avenue NW, Dept. W12 Box 9609
Washington, D.C. 20016

MAIL ORDERS: Send check or M.O. for total purchase price, plus $1.00 postage & handling. D.C. residents, add 6% tax. Charge card customers: include all embossed information on card.

Get the most from your micro with software and accessories from one of the world's largest selections.

The Program Store

CALL TOLL FREE 800 424-2738

EPYX COMPUTER GAMES THINKERS PLAY

TEMPLE OF APSHAI

TEMPLE OF APSHAI
The first of the DunjonQuest series, and still one of the most popular. In exploring over 200 rooms in the magical labyrinth, you will encounter more than 30 kinds of fearsome monsters guarding over 70 treasures. Some of the treasures will help you in your quest, but you must still watch out for the many monsters and traps that spring out from the walls and shadows.
Apple (48K disk) TRS-80 (16K tape, 32K disk) $39.95

LOWER REACHES OF APSHAI: Four more levels. Requires above program. $19.95

HELLFIRE WARRIOR
Sequel to APSHAI, this thriller gives you four levels to explore with sixty rooms each. New monsters, new traps, new challenge!
Apple (48K disk), TRS-80 (16K tape, 32K disk) $39.95

KEYS OF ACHEREON: Four more levels. Requires above program. $19.95

MORLOC'S TOWER
A completely different 6-level "dunjon" hides treasures and trouble. Defeating the dreaded Morloc takes wit and determination.
Apple (32K tape, 48K disk), TRS-80 (16K tape, 32K disk), Atari (32K tape or disk) $19.95

DATESTONES OF RYN
Rex the Reaver and his band of 24 cutthroats have made off with the treasured datestones. They're hiding in an labyrinth of caves in the Haunted Mountains. It is your job to find them before they find you.
Apple (32K tape, 48K disk), TRS-80 (16K tape, 32K disk), Atari (32K tape or disk) $19.95

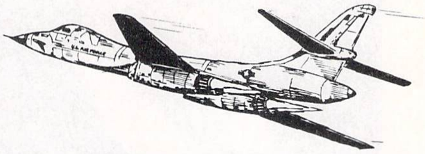
TUESDAY MORNING QUARTERBACK
An amazingly realistic football game that lets you captain the team of your choice against the team you choose for the computer. 96 possible offensive/defensive combinations are available. A database includes the teams' rosters as well as their strengths and weaknesses -- just like the real thing!
Apple (48K disk), TRS-80 (48K disk) $29.95

STARQUEST

RESCUE AT RIGEL
First of the "Starquest" series, it's an interplanetary adventure. The evil High Tollah has captured ten prisoners; if you don't find and save them they will be transformed into enemy aliens -- and set out after you!
Apple (32K tape, 48K disk), TRS-80 (16K tape, 32K disk), Atari (32K tape or disk) $19.95

STAR WARRIOR
You're on your own, light years from Earth in intergalactic space. If you thought saving the princess in RESCUE AT RIGEL was a challenge, wait 'til you pit yourself against STAR WARRIOR! Order the second edition of the Starquest Series now.
Apple (32K tape, 48K disk), TRS-80 (16K tape, 32K disk), Atari (32K tape or disk) $19.95

MICROCOMPUTER GAMES



From Avalon Hill
Fine war and strategy games for the home computer that pit your skill against the program. 16K tape unless otherwise noted.

MIDWAY CAMPAIGN - relive the battle as you control our naval forces. TRS-80, Apple, Atari (32K) $14.95

B-1 NUCLEAR BOMBER - avoid MiGs & missiles as you pilot this advanced aircraft. TRS-80, Apple, Atari (16K) $14.95

NORTH ATLANTIC CONVOY RAIDER - lets you simulate the Bismark convoy raid of 1941. TRS-80, Apple, Atari (16K) $14.95

NUKE WAR - choose espionage or arms buildup to control a nuclear confrontation. TRS-80, Apple, Atari (16K) $14.95

PLANET MINERS - one to four players compete, staking claims in the solar system. TRS-80, Apple, Atari (24K) $14.95

CONFLICT 2500 - star battle in the 26th century for up to 10 players. TRS-80, Apple, Atari (32K) $14.95

LORDS OF KARMA - adventure in a land where good deeds score more than treachery. TRS-80, Apple, Atari (40K) $20

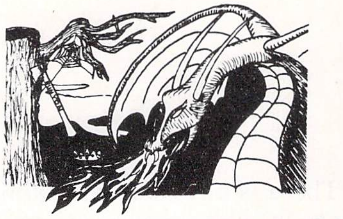
TANKTICS - combines gameboard & computer in a strategic WWII tank battle. TRS-80, Apple, Atari (24K) $23.95

MAJOR LEAGUE BASEBALL - play solitaire or head-to-head, using names & statistics of real players. Apple (48K disk) only, $24.95

THE PROGRAM STORE
Franchises Available

SCOTT ADAMS'

ADVENTURE



By Scott Adams from Adventure International
Twelve different adventures make up this acclaimed series. Written in machine language for fast response, they support lower case (if installed) and have over 100 words in their vocabularies.

Until you've played an Adventure, you can't appreciate the hours of challenge and fun built into each program. Each tests your powers of reason and deduction as you attempt to accomplish your mission using the implements you have, find or devise. Tape for TRS-80 16K, Apple 24K, Atari 24K (Adventures 1-9 only for Atari).

1. ADVENTURELAND - caves, pits, magic words and the dragon... $19.95
2. PIRATE'S ADVENTURE - go from your London flat to Treasure Island... $19.95
3. MISSION IMPOSSIBLE - complete your mission or the reactor is doomed... $19.95
4. VOODOO CASTLE - Save Count Cristo from his fiendish curse... $19.95
5. THE COUNT - when you awaken in Transylvania, watch your neck... $19.95
6. STRANGE ODYSSEY - find alien treasures at the edge of the galaxy... $19.95
7. MYSTERY FUN HOUSE - try to leave the most bizarre funhouse you've seen... $19.95
8. PYRAMID OF DOOM - search the labyrinth for ancient treasures... $19.95
9. GHOST TOWN - just because something moves doesn't mean it's not dead... $19.95
10. SAVAGE ISLAND #1 - first part of a new series for advanced adventurers...$19.95
11. SAVAGE ISLAND #2 - part two: requires the purchase of part one (above)...$19.95
12. GOLDEN VOYAGE - you have just 3 days to rejuvenate the near-dead king...$19.95

Three Adventures on disk (TRS-80 32K, Apple 48K), choose:
1-3 4-6 7-9 10-12 $39.95 per disk

SARGON II

By Dan & Kathe Spraklen from Hayden
Acclaimed the best of the microcomputer chess programs. SARGON II came in third in the 9th North American Computer Chess Championship, playing against much bigger machines! You haven't really played chess against your computer until you've tried this brilliant program.

Tape: TRS-80 (16K), Apple (24K) $29.95
Disk: TRS-80 (32K), Apple (24K) $34.95

Prices Subject to Change

Source: TCC358

THE PROGRAM STORE · Dept W12 Box 9609 · 4200 Wisconsin Ave. NW · Washington, D.C. 20016

Item Price ________
____
____
____

Postage $1.00
Total ______

☐ CHECK ☐ VISA
☐ MASTERCARD MC Bank #____ Card # ________ Exp ______

name ____________
addr ____________
city ____________ state __ zip ______

Personal Telecommunications

Stepping into the 21st Century

by A. C. Markkula, Jr.

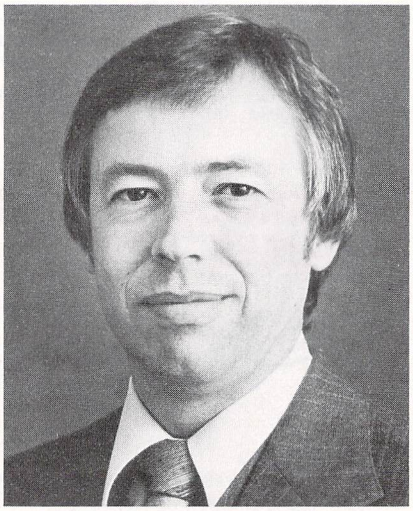
There is a revolution taking place in telecommunications – a fact which I'm sure isn't lost to anyone who has followed the growth of high technology, and certainly not to subscribers of THE SOURCE.

Manufacturers and users alike try to discern the shadows of the future through the smoke of the present. There are a number of people, in fact, who make their living forecasting the future of technology – usually by making utopian predictions far enough into the future that, when the time comes, no one will remember to look back to check the predictions' validity.

It's difficult to say what competitive battles, scientific breakthroughs, or social changes will take place in the next 30 to 50 years. But, as a businessman who has been witness to the birth of the personal computer industry and its early struggles, I think I can bring to my predictions a degree of common sense often lacking in the work of professional soothsayers.

If present trends hold, it seems quite likely that by the turn of the century the personal computer will be vying with the automobile as an adult's second most important possession (after a home, of course). For some of you, that may already be the case, and you no doubt understand what I mean. But for the average person on the street, such a prediction would probably be too fantastic to believe.

If one looks only at the existing capabilities of personal computers, not even counting the possibility of applications as yet undiscovered, and if one simply allows those capabilities (such as personal record keeping, education and entertainment) to expand and become more sophisticated at a rate commensurate with technological change in the last few decades, then it's not hard to imagine the personal computer being considered as important as an automobile, particularly by professional people.


A.C. Markkula, Jr., President: Apple Computer, Inc.

Yet, in my opinion, as the years pass, such applications will pale in comparison to using a personal computer as a telecommunications instrument. Telecommunications – the ability to transfer information back and forth quickly – will make the personal computer an absolute necessity for 21st century man.

As a subscriber to THE SOURCE, you can consider yourself a pioneer in this new world of instant access to nearly infinite amounts of information. I'd like to review with you some of the key elements of the telecommunications revolution and use them as a springboard for making some predictions.

Key Elements

Perhaps the most important capability offered by computer-based telecommunications is the access to remote sources of information – data bases such as THE SOURCE. One can't overemphasize the importance of this capability. First of all, it provides the average person with quantities of information previously unmatched by the libraries of kings.

But subscriber supported data acquisition will be more than simply an unequalled gathering of facts. It will also be organization. With almost instantaneous access and unlimited reach, *location is no longer important.* Thus, specialized information can be gathered together into nodes along the vast telecom network that will crisscross the world, for sale to customers. This is already happening with facts of interest to certain business customers, such as stock quotations and commodity prices. It's conceivable that in the next half-century almost all the world's knowledge, from literature to daily news, from the prosaic (tonight's movie listing) to the crucially important (poison antidotes) will be parcelled out by competing data bases.

The effect will be an interesting contradiction: information, even as it becomes more decentralized among users, will at the same time also become more centralized among suppliers.

Of equal importance is information transfer – the ability to communicate with a computer or another human being in a manner which is both less expensive and more accurate than traditional methods, such as the mail or voice over the telephone. Existing electronic mail systems, rudimentary as they are, already have shown the advantage of telecommunications over these older techniques. Computer-to-computer communications is not only more accurate than human voice over the telephone (both because it is written and because reception is assured at the addressee's computer), but it is also cheaper and faster than a letter.

Furthermore, telecommunications can save even more money by transferring the data during periods of lowest transfer rates. (Try *telephoning* a business contact at three in the morning!)

Of equal importance to electronic mail is its cousin, electronic funds transfer. Though a common procedure within the banking industry, its consumer application in the future has not received the coverage its impact deserves. That will change one of these days, with the opening of the first totally computerized supermarket or retail store.

This store will have no fancy layout or colorful product promotions or even a large parking lot. More likely, it will be just a big concrete warehouse down by the railroad tracks, filled to the ceiling with boxes of merchandise. But, for the shopper at home sitting before the CRT, the view will be indistinguishable from the real thing as he or she browses along the video-created aisles, comparing prices and pushing a button to order the desired goods. Following the proper subtraction from the buyer's bank account, the goods will be delivered by truck – thus reducing tens of millions of automobiles to a few thousand delivery vehicles.

You may have noticed that this article has talked only about personal computers as the vehicles for consumers to tap into telecommunications networks, despite the fact that both intelligent and dumb terminals these days are often used precisely for that purpose. This has been a calculated omission, not a pro-personal computer bias.

Even a cursory study of the characteristics of terminals indicates that, while they have an enormous future as telecommunication links to central computers within companies, their usefulness to consumers in communicating with distant data bases will become increasingly limited.

The reason is simple: terminals, were they to grow in number, would place too great a processing load on data bases. To hang a million terminals on a single big computer – no matter how big it is – is going to bog the machine down so it's no longer effective. After all, crucial to subscription data bases is the idea that information can be located more rapidly through that channel than by traditional means. And that won't be the case, if those data bases are all jammed up with terminals demanding not only that the large computer locate information, but also manipulate the data in a desired form.

The telecommunications revolution won't be complete until the processing is distributed, the central data base computers are freed to perform only search and locate functions, and subscribers' personal computers perform all other processing.

By the way, such a scenario also overcomes another obstacle to the growth of telecommunications: *no two people want their information in the same format.* Some people want to see a column of numbers, others graphs; still others want paragraphs of exposition, and there are even some who want only pictures. If we in the personal computing and telecommunications industries are going to live up to the claim that we are making an important breakthrough in human society, then we have to provide people with information in formats customized to their desires. This will be impossible if we rely entirely upon big, centralized computers. It can only be done by shifting at least part of the processing load out to the user. And a dumb terminal in every house just isn't going to do the job.

▶

Networking

Needless to say, all of these dreams about the world's knowledge at the touch of a finger and a personal computer in every home are very nice (particularly to a personal computer manufacturer). But life is not that simple. Changes take place fitfully, and never along the smooth path our imagination creates for them. Major changes in society, such as the one being predicted for telecommunications, send shock waves to every corner of both business and private life—creating new difficulties that could never have been predicted.

Consider networking. Obviously, it's thrilling to talk about telecommunications links between tens of millions of personal computers and scores of centralized data base computers. But what will those links consist of? What sort of transmission lines will carry those billions of bits of data every day?

An obvious answer is the existing telephone system. After all, telephone lines already in place almost perfectly match the data communications networks of the future. The question is, does the present telephone system have the capacity to carry this new flood of transmission?

Well, maybe. No one is quite sure right now. The question is one of balance, of a trade off. Data communication offers certain advantages over voice communication: it's faster, more accurate, less-expensive and reception is all but guaranteed. So, one would expect that as data transmission increases, voice transmission will fall off. What no one knows for sure is whether that replacement will be complete enough to keep the strain off the system. Otherwise, if data communication experiences explosive growth, yet voice communications only drop off slightly, we are going to run out of copper wire very fast.

Obstacles

Luckily, technological innovation may once again save the day. Both optical fibers and satellite communications promise a manifold increase in the total capacity of our transmission networks. Much depends upon these new technologies. If they can be brought up to speed in time, reducing transmission costs and increasing capacity, networking may turn out to be the driving force rather than the limiting factor in the telecommunications revolution. We are just going to have to wait and see.

And that is only one obstacle. The entire field of data acquisition is sort of a chicken-or-the-egg situation. Not many people are interested in gaining access to a very small amount of data, and, conversely, huge data bases will never exist until there is a large number of people who want them. There will always be a few people with either the curiosity or the need to subscribe. But if left entirely in the hands of consumers, the result would probably be a vicious circle in which nothing happened, the data bases were never built, and both sides were left dissatisfied.

A similar problem exists in data communications, most notably in electronic mail. Sure it's wonderful to be able to sit down at your Apple computer and send a letter to your friend's Apple computer across town. But for the average person, is it worth $2,000 in equipment to replace a letter which would cost 20 cents to mail?

Of course not. It will be some day, however, when the average person mentally assigns a higher value to the overall usefulness of a personal computer (including its electronic mail capabilities) than its actual retail price. In other words, the breakthrough in personal computers and telecommunications will occur when the vicious circle is broken, and when those functions which most enhance the value of personal computers, data acquisition, and data communications, become not only prevalent, but easy-to-use and inexpensive.

As I said, though, if consumers can't break out of the cycle alone, where will the assistance come from?

Well, luckily there are other sectors of society with a vested interest in the success of the telecommunications revolution, most notably business and the government. Electronic mail may at present be too expensive for individual use, but for a large corporation or a government agency, it can be a lot less expensive than using the post office. The same is true with data bases: they are worth the price of maintenance if they can help a company or agency get the job done in a timely, cost-saving manner. And, of course, we can't overlook private organizations such as THE SOURCE, backed by larger companies with the necessary capital to take the risk of being among the first to explore this extraordinary new world.

These programs are planting the seeds of the telecommunications revolution. In that capacity, they are performing a two-fold service: cutting a path for numerous new firms to follow in the next few decades, and helping all of us improve our products in expectation of the profound changes waiting in the wings.

Operations such as THE SOURCE provide us with our knowledge of how people use telecommunications, what value it has for them, and the subtleties of its everyday use. Armed with this sort of knowledge, we will be able to improve our products to the point where the balance between cost and capabilities tips on the side of the man in the street.

And, when that happens, stand back! ■

Full service publisher offers service to Source users!

Tate Publishing offers full service publishing to Source users. Users may key type on the Source as a letter (including size, font, width, etc. commands) and "mail" it to Tate Publishing's Source Box to be run out on one of Tate's high speed phototypesetters. The galleys are then mailed out in the next mail. Users may request Express service on rush type. This allows next day service in most areas of the country. Large volume users may open an account, but small volume or one time users may pay by C.O.D. or credit card. Tate Publishing offers complete publishing services including Typesetting, Paste-up, Printing, Binding, Photography, and Distribution of published materials. Source users may make use of any part of Tate Publishing as needed. Inquire **TCD 671** or write to Tate Publishing for a free booklet on setting type with the Source.

Some of Tate Publishing's capabilities include:

TYPESETTING: A wide variety of faces is included in our library. Some of the uses include: Custom Greeting Cards, Business Cards, Letter Heads, Advertising Flyers, Computer Documentation, Town Reports, Newsletters, Magazines, Books, and any other purpose you can think of needing professional looking type and design.

PRINTING: Any size, any quantity, any stock, any ink, one to four colors.

BINDING: Three Hole Punch, Stapled, Saddle Stitch, Spiral Bound, Perfect Bound (paper back books), or Hard Cover Bound. One to one million copies.

Give us a chance at your next typesetting or publishing job. We are sure you will like our type, delivery, and prices!

advertising faces
Artistic Faces
Formal Faces
FUNNY FACES
HEAVY FACES
Invitation Faces
Report Faces
Scientific $f \therefore \ll \cong \int$
Text Faces

Tate Publishing
Where Versatility is the rule!
Box 906, No. Chelmsford, Ma 01863 [617]-692-8395

In short, **ALL TYPES** of faces for just about any type of work. We have over two hundred faces in over seventy sizes available to Source users!

The Personal Computer Phenomenon in Education

by
Irene Fandel Gersten, James A. Schuyler and Lesley I. Czechowicz

- A crowd of museum-goers stands transfixed at an exhibition of rare gems and minerals as an obliging microcomputer answers questions, typed on its keyboard, in a friendly, enthusiastic tone of voice.

- An enterprising twelve-year-old completes an independent study of Greek Mythology by reprogramming a game of Hangman, in plain English, into a class lesson on ancient gods and goddesses.

- A high school social studies teacher dials a telephone access number that links his rural school to an information utility network and incorporates late-breaking news items into tomorrow's lesson on current events.

- A kindergarten class sits cross-legged on the floor in front of a color video display, competing to see who can name and count the barnyard animals that cavort across the giant screen.

- A college student begins to research a history project by searching the bubble memory of her library's computer for pertinent books and articles available in libraries throughout her state.

Once upon a time, scenes like these occurred only in fantasy. Today, they are an integral part of our daily lives. Illustrating how, even after thirty years of breathtaking progress, advances in the field of electronics continue to effect radical change in society's basic institutions and systems.

Technology's latest gifts—micro or "personal" computers—are just the latest in a series of electronic revolutions that have prodded us into thoroughly rethinking the ways we work and play. These desk-top miracles have affected everyone. Until recently, the major effects have been seen on the job. But their impact today clearly reaches more and more beyond the workplace, forcing us to consider the profound implications electronic learning aids have for education—and their potential as the most innovative teaching/ learning tools since the development of the book.

The hyperbole surrounding computer assisted instruction (CAI) stems from one simple fact: as an instrument of instruction, the computer offers a unique advantage over all other teaching tools. Books, television and radio also give large numbers of people access to expert information by "broadcasting" from a central source. But only the computer can make it possible to process information in an environment that permits and even encourages interaction. Because such interaction is crucial in developing the inferential skills

Dr. Gersten is Senior Editor with the Reader's Digest Educational Division; Dr. Schuyler is Chairman of the Board and President of DesignWare, Inc., creators of educational software; Ms. Czechowicz is Vice President, Product Development, at DesignWare in San Francisco CA.

which are the building blocks of human intelligence, the computer's entrance into the educational arena during the early 1960's promised truly revolutionary changes in the way we learn and teach.

Early CAI was unable to deliver that promise because it suffered the limitations of pioneering technology. For example, the Plato system, first developed by the University of Illinois in 1962 and later marketed by Control Data Corporation, consisted of numerous individual terminals linked by telephone to a giant central computer. Plagued by high cost, low reliability, inadequate programming and, as the number of users grew, extremely slow response time, most massive mainframes received generally bad press: from teachers who were afraid they might be replaced by machines; from students who resented what they saw as depersonalization of the classroom; and from parents, who thought their children would benefit more from more personalized instruction. These problems, of hardware, software and attitude were further exacerbated by the equally serious problem of language, since interaction with the mainframes depended on at least some programming mastery.

Recent Advances

During the past five years, however, astounding advances in microelectronics have liberated the computer's intrinsic interactive capability. The new hardware – more affordable, portable, fast to respond, capable of heavy computation, and complex logic – is easy enough for a child to use. Consequently, the computer has moved out of advanced classrooms devoted solely to computer education and into the mainstream of the educational process.

As microcomputers have rapidly worked their way down the educational ladder from college to elementary school (more computers have been installed in classrooms during the past 18 months than in the past ten years) they have proved groundless the early fears about loss of teacher control, depersonalization, and lack of individualization. To the contrary, computers are now applauded by many teachers and administrators for the assistance they give with the arduous chores of classroom and school management; by students for the challenge they lend to core skills practice and the new intimacy they add to information retrieval; and by parents, especially those with children who have special needs, who see a direct link between electronic learning aids and an increase in learning curves.

There are a number of general benefits associated with Computer Based Education (CBE). For one thing, computer literacy and the discriminatory use of hardware contribute to cognitive development and the development of psychomotor skills. For another, computers demonstrably stimulate more positive attitudes towards learning. All the evidence is not in yet. Nor will it be for some time, since widespread use of computers in the classroom is relatively recent. Current data shows however, almost without exception, that students who use the refined, highly interactive CAI now available also make significantly greater gains in specific skill areas than those who use solely traditional learning tools. Just how concrete those gains can be has been documented by Lois Avaunne Hed. After examining the effects math, reading and language arts CAI had on regular classroom, special education and disadvantaged elementary school students in fifteen different studies, she concluded that students advanced because the CAI approach compressed learning time, individualized instruction, and provided more hours of concentrated instruction for each learner.

The revolution that early proponents of CBE predicted seems imminent today because the state-of-the-art has finally caught up with – and may even surpass – the promises made two decades ago. One tremendous difference involves the cost of computing power. Plato, which continues to be the most popular mainframe system, requires an investment of $10,000 per terminal and a $500,000 central computer. Personal computers, on the other hand, can be purchased for between $500 and $5,000 (the most sophisticated

▶

system) and cost 40 ¢ per student hour—just 20% of the still expensive time-sharing mainframes. As a result, sales of classroom personal computers, which mounted to $102 million last year, are expected to grow annually by 31% so that by 1985 there should be 270,000 units in classrooms all across the country.

A second important factor contributing to the growing acceptance and use of electronic learning aids relates to technological capability. A personal computer system has two components: the computer itself, or the hardware, and the computer's programs, or the software. Personal computer software is based on a microprocessor or microcomputer which is usually a single integrated circuit chip. In addition, there are usually numerous other chips with specific peripheral functions such as additional memory, displays, keyboard, cassette interface, or printer.

Recent advances in hardware capability have resulted in video disks and bubble memories, which make it possible to store whole libraries of information, as well as voice synthesizers and flatscreen video displays, which give immediate, intimate and graphic feedback.

Further Advances

The revolution in microelectronics does not seem to be slowing down. Innovative developments are an almost daily occurrence. IBM, for example, sparked a whole new ballyhoo when it entered the personal computer market this past August. The IBM machine, featuring a 16-bit chip, will offer four times the computing power and have a substantially greater memory of any of the 8-bit machines sold by its three chief competitors, Commodore, Apple and Tandy-Radio-Shack. Such versatility and CPU (Central Processing Unit) speed will give a wide range of applications, and even though the first of these miracles of circuitry will not utilize all their power, what they do use will enable them to work with longer programs, more data, and to display images on video screens in greater detail than has ever been possible before.

None of these technological advances would be quite as exciting if CBE languages had not also advanced at a revolutionary pace. Early personal computers were equipped with the BASIC language. Since BASIC was often an integral part of the personal computer and higher level languages were hard to implement, BASIC was the mainstay. Thus, educational applications for personal computers are written almost entirely in BASIC. Unfortunately, BASIC is not always particularly well suited to educational interactions. For example, it is not easy to store student scores for later recall. And it is especially difficult to implement complex structures which focus on different kinds of learning strategies. BASIC *is* easy to learn and use, but still requires mastery of numerous statements and commands.

During the mid 1970's some of these problems were eased by the development of educationally-oriented languages. PILOT, for example, though extremely costly, (and thus more attractive to professional software firms) made it possible for classroom teachers to write CBE for use in their own particular classrooms. In addition, educational authoring aids such as Bell & Howell's PASS, became available. These systems interact "in English" with an author: rather than the author of the program telling the computer what to do via programming language commands, authoring aids give an author options from which to choose.,

The development of a system like PASS seems to offer a portent of things to come. PASS, which features "non procedural" language, does not require any knowledge of how a computer works, or of the exact process which will be used to retrieve the data. PASS and systems like it require only that the user understand how the data are structured in the computer and what criteria will be used to manipulate or retrieve them. The possibilities they suggest—for cheaper educational materials, more rapidly produced materials, and even materials created by individual teachers for use by their own particular—classes—are staggering. Learning to program really won't be necessary.

Regardless of how sophisticated technology becomes, or how much flexibility CBE languages provide, the real capability of an instructional computer system depends upon not one, but two factors: the computer itself and the computer's software. Problems with educational software, often referred to as courseware, plagued early proponents of CBE. Some of the same problems still exist today, specifically a paucity of well-tested, well-documented materials for all core skill areas. Most of the personal computer courseware now in use comes from individual teachers and students. New "software publishing houses" are also being formed almost daily. Often, however, these firms do not create their own courseware. Rather, they purchase programs created by individual teachers or home programmers (often called "garage shop programmers"), engage in a minimal amount of customizing and testing, and then sell the materials directly to teachers. This method has great appeal to teachers and students, since they are the potential authors. Unfortunately, it does not provide an immediate flood of the well-planned, well-programmed materials that are necessary.

The courseware situation is changing and improving rapidly, however, as publishers of educational books and other materials scramble to fill the demand. Reader's Digest, Science Research Associates, Scott Foresman, Harcourt Brace Jovanovich, McGraw Hill, Milliken Publishing and Random House are just a few of the prestigious publishers using their expertise and experience to produce educationally sound courseware in math, reading and language arts. Their commitment to developing high quality courseware illustrates how the personal computer is revolutionizing not only the classroom, but the world of publishing as well.

The Educational Revolution

Educators, concerned with the scarcity of adequate courseware also have other options today. *Networking*, either "locally" (wiring a number of computers to a single box) or "globally" (connecting individual computers to a central computer) take full advantage of the interactive capabilities of the personal computer and make it possible for teachers and students to share and retrieve knowledge from a variety of information utilities. Because the computers are linked to a single box, the systems are used to store personal messages from student to student or instructor to student. THE SOURCE, which allows individuals across the country to access a single information service, provides such message switching capabilities, as well as libraries of educational programs and games. Very soon, teachers and students will also be able to "download" from THE SOURCE: connect their personal computers to the network, load a particular program, disconnect from the network, use the program for a period of time, and then reconnect to flash information back to a central file of records.

Today it is clear that, after years of promises, disappointments and speculation, we are at the very brink of the long-awaited *educational revolution.* Technology has already profoundly affected the way knowledge is gained and administered. In schools all across the country, at all levels, from the university to the kindergarten class, the computer is being used as a time-saving device, freeing teachers and administrators from routine activities and giving them the opportunity to apply their specialized knowledge; as an exciting medium to individualized instruction for students at all skill levels; and as a diagnostic/prescriptive tool that will do much to bring the dream of truly equal educational opportunity a bit closer to reality. ■

SOURCEWORLD CLASSIFIED

Stock Market Program Book
Put your computer to work developing stock market trading tools. This 90 page book includes "BASIC" programs that implement statistical, electronic engineering and programming techniques to provide 5 types of automatic buying and selling methods. Sample stock prices and results are supplied to verify our programs in your computer. Then you can try your own stock prices for a day to day trading tool. Send $19.75 check for Stock Program Book to:

Dr. Wm. A. Schmidt
P.O. Box 362
Dublin, PA 18917

On-Line Humanistic Astrologer
Karen Handley, R.N. MA in humanistic psychology, would like to provide astrological services via SOURCE at rates more reasonable than currently available. Give yourself or someone you love the gift of knowledge this year. Immediate responses to all mail or requests. For further information: TCV286 14343 Addison Ave. #205; Sherman Oaks, CA 91423, (213) 990-6400

Need information on developments in high-technology fields like computer graphics, videodiscs, or telecommunications? Red Bank Information Services can help. An extensive print database is supplemented with access to Lockheed Dialog and THE SOURCE. Satisfied clients in North America and Europe, quick service and competitive rates. Call 916-527-0556 or send mail to TCD621.

For Sale: TI 745 Portable Data Terminal
In excellent condition, new printhead, features: 5 × 7 dot matrix (uppercase only) switch selectable baud rate (110/300) RS232C port for printer or coupler compact size, 13.5 lbs.

I will include a case of thermal paper, RS232C cable kit, and complete manual, as well as pay shipping – all for $900 certified check or money order. Contact: Howard Jones, Dept. of Fine Arts, University of New Orleans, New Orleans, LA 70148
(504) 286-6412

Applechess Openings
It has been calculated that the four opening moves can be made in 197,299 ways, leading to some 72,000 different positions. The approximate number of different games possible is 25×10^116, a number astronomically hgher than the number of atoms in the observable universe!!! A very high percentage of these games and moves are not logical. Only a few of these moves have been severely compressed for lack of memory available in the computer. This program only leaves about 150 free bytes of memory in a 48K machine. There are no text files. I've spent several hours picking the most modern, the common, and the most popular openings and lines.

This program contains 1310 half moves and 86 final positions that are reached with no less than 7 moves and no more than 21. You are going to need a chess board and pieces because the program does not allow space for graphics. The notation is algebraic, E2-E4, G8-F6. The program will be beneficial to not only the beginner but to the advanced player as well. A beginner will be able to learn a variety of good opening moves, while the advanced player will be able to reach a position whether or not it's the end of a line, set up that position in an artificial intelligent chess game and proceed with a much more competitive game, since most computer chess games have little or no opening book moves. At the beginning you will be asked if you want to play white, black, or all (W/B/A). If you pick white you will have three moves to choose from. If you pick black the computer will randomly pick one of those three moves. If you pick 'all' you will be able to play both white and black, with the computer showing all the possible branch moves. During play a branch will finally funnel into a line giving you only one move to choose from. If you think you see a better move the moves you have made will be listed out. Again just load this position into your artificial intelligent chess program and play on.
Requirements:48K, Applesoft, integer in ROM, disk drive, chess board and pieces. Available only on disk. Send $15 in check or money order to Bill Cowan, 24329 Westwood Dr., Westlake, Ohio 44145. Please specify 3.2 or 3.3 DOS.

On-Line Typographic Service available via THE SOURCE. S/MAIL any machine-readable document to our account number and we'll convert your data into paginated, camera-ready typography.

EXPERTEL ON-LINE TYPOGRAPHIC SERVICE enables any word processor to function as a publishing system. Using our simple, functional instruction set (%HD keyed before headlines, %TX keyed before text) you can go on-line to the world's most advanced type shop.

On-line business graphics, code-free data conversions, records management and electronic publishing services are all just a part of EXPERTEL, America's graphics utility.

EXPERTEL ON-LINE TYPOGRAPHIC SERVICES
300 Park Avenue South, NY, NY 10010
212-420-0990 TCU479

Electronic Publishing Services. Expertel On-Line Typographic Services offers a wide variety of publishing services. Input copy to our system from any word processor, data processor or personal computer and receive crisp, fully paginated reproduction proof ready for camera.

Transmit statistical information and get back typeset graphs, charts and tables – automatically. Expertel is a division of Expertype, one of the country's largest commercial typesetters.

If it has anything to do with graphics and information, call us.

EXPERTEL
We make words work.
300 Park Avenue South, NY, NY 10010
212-420-0990 TCU479

SOURCEWORLD ADVERTISING RATE INFORMATION

—Circulation: 80,000, reaching the world of telecommunications—

Inside front, inside back, and outside back covers: $1,000
(with full-color separations provided by advertiser)
Inside pages, full-color, full-page: $650
Inside pages, black/white, full-page: $400; one-half page: $220
Full-spread, black/white: $650

Next issue of *Sourceworld*: March 1982; advertising deadline: 15 February

—Direct Advertising telephone: 703-790-5500—

Classified Advertisements: 0-80 words: $25; 81-151, $45; 151-225, $55; 226-400, $100. Address block counts seven words.Classifieds accepted on-line only thru TCA022.

SUBSCRIBE TO THE SOURCE!

Ask your dealer how to sign-up now.

OR mail this postpaid reply card for further information on how you can access over 1200 information and communication services on THE SOURCE.

☐ Yes, please send me more information.

Name ______________________________

Company ______________________________

Address ______________________________

City ________________ State ________ Zip ________

Telephone (   ) ________________________

Type of Equipment ________________________

MO1

DEALER'S NAME HERE

No Postage
Necessary if
Mailed in the
United States

BUSINESS REPLY MAIL

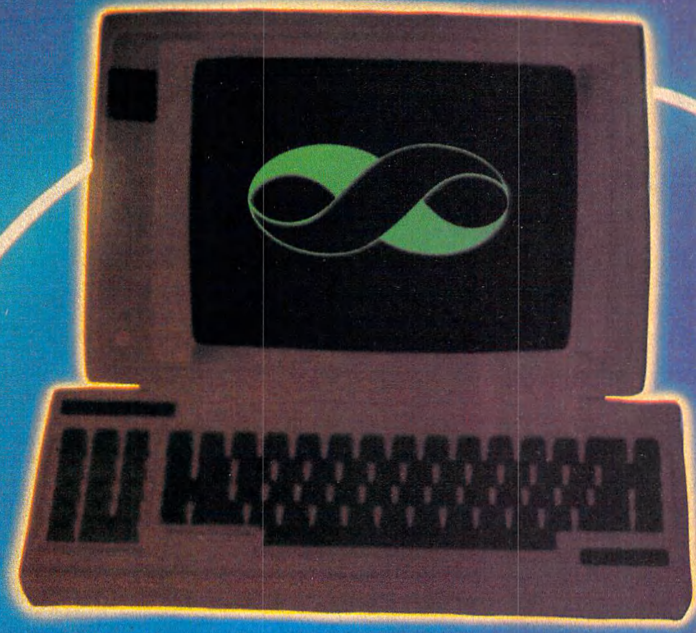
First Class Permit No. 4616 McLean, VA

Postage will be paid by addressee

Source Telecomputing Corporation
1616 Anderson Road
McLean, Virginia 22102

What lifts the learning curve?

It's teachers and students working together—questioning, learning, understanding, enjoying—with a computer to stimulate questions while nurturing knowledge with immediate answers. Yes. It's computerized instruction which has been on the horizon for years. But it's computerized instruction now made understandable and practical by the Reader's Digest. Clear. Adventurous. Educational.



The Reader's Digest Mathematics Assessment/Prescriptive Edu-Disks™:

Available November, 1981

- Assess standard mathematics objectives, grades 1-7
- Assign work on computer based on each student's assessment results
- Remediate (through testing) to assure control of individual learning objectives
- Correlate with the ten leading mathematics basals

The Reader's Digest Problem-Solving Edu-Disks™:

Available May, 1982

- Present techniques of logical thinking that help a student make decisions and solve problems at the student's own pace
- Provide highly motivating, immediate feedback
- Are compatible with a mathematics, science, English or reading curriculum
- Offer two packages: one for grades 5 and 6; one for grades 7 and 8

The Reader's Digest Composition/ Language Arts Edu-Disks™:

Available Beginning Fall, 1982

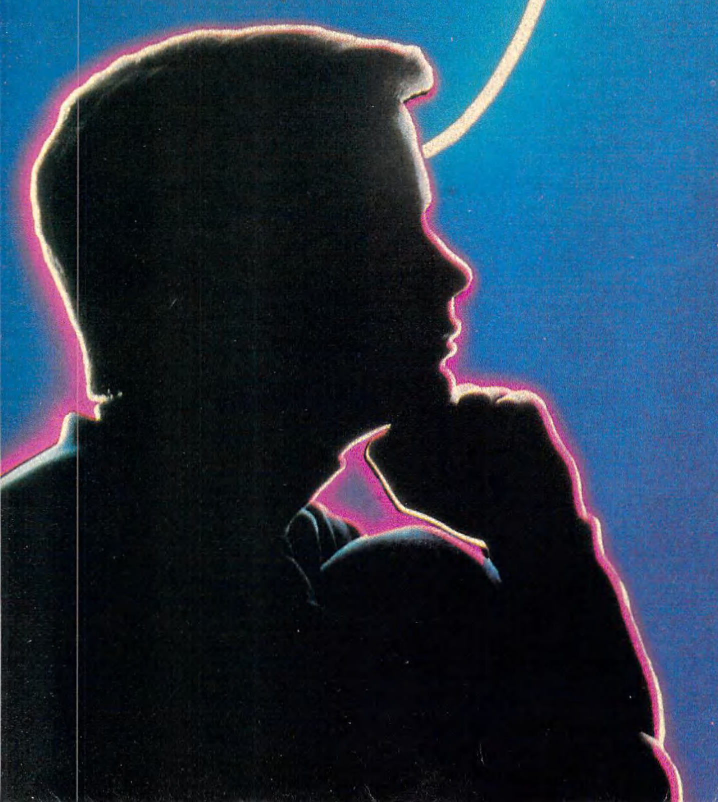
- Present third-grade to high-school composition concepts computer-clarified for interactive excitement, with motivation enhanced by sound and graphics
- Provide composition skills flexibly designed into three levels of difficulty
- Offer extra instruction and practice reinforcement of basal Composition/Language Arts programs

Also available— **SOURCE**℠—a unique service that extends the teaching power of the classroom computer through the power of telecomputing! The result: a tool that is as appealing to your students as it is useful to you. Thus, you will be able to supplement your regular lessons in:

- Economics—with a direct line on stock reports
- Social Studies—with right-off-the-wire news reports from United Press International.

Plus:

- Math programs
- Supplemental word games
- Foreign language drills
- Electronic Mail communication between "THE SOURCE-connected" classrooms within your district and across the nation.



See it demonstrated. Share these Edu-Disks™ Programs and THE SOURCE with your students. Simply call the Reader's Digest at **(914) 769-7000 Ext. 242** to arrange an unforgettable and revitalizing learning experience in your classroom.

Reader's Digest®
EDUCATIONAL DIVISION

THE SOURCE is a service mark of Source Telecomputing Corporation,
a subsidiary of The Reader's Digest Association, Inc.
Edu-Disks is a trademark of The Reader's Digest Association, Incorporated.

Be First in a New World...

In 1956, a handful of individuals with extraordinary vision took a chance on the future of the fast food industry. They had the courage to invest all they had on a dream. The reality has expanded into the sales of over 30-billion hamburgers for just one company. Would you have taken such a chance?

The travel agency industry today is comparably as underdeveloped and inefficient as the fast food business was in 1956, but not for long.

FIRSTWORLD Travel Corporation is revolutionizing the industry through the dynamic use of advanced technology and modern business systems. The national expansion plan includes independently owned districts, each designed to support approximately thirty affiliated agencies. **FIRSTWORLD** is granting exclusive District development rights to selected persons with vision, ambition and leadership ability. The capital requirement is $175,000; the opportunity is golden.

Please contact me personally,

John F. Curtis

John F. Curtis, Jr.
Chairman of the Board

FIRSTWORLD
PROFESSIONAL TRAVEL AGENTS

1330 Orange Avenue
Suite 300
Coronado Island, CA 92118
(714) 437-4222